



AGENDA

STATE OF TEXAS)(
CITY OF FRIENDSWOOD)(
COUNTIES OF GALVESTON/HARRIS)(
FEBRUARY 04, 2019)(
)

NOTICE IS HEREBY GIVEN OF A FRIENDSWOOD CITY COUNCIL REGULAR MEETING TO BE HELD AT 5:00 PM ON MONDAY, FEBRUARY 04, 2019, AT FRIENDSWOOD CITY HALL, COUNCIL CHAMBERS, 910 S. FRIENDSWOOD DRIVE, FRIENDSWOOD, TEXAS, REGARDING THE ITEMS OF BUSINESS ACCORDING TO THE AGENDA LISTED BELOW:

5:00 PM – REGULAR MEETING

1. Call to order
2. Invocation – Pastor Mike Ross, Friendswood Church of Christ
3. Pledge of Allegiance – Cadette Girl Scouts Vivian Moon and Mallory Rollins United States and Texas (HONOR THE TEXAS FLAG; I PLEDGE ALLEGIANCE TO THEE, TEXAS, ONE STATE UNDER GOD, ONE AND INDIVISIBLE)
4. Communications from the Public
(To comply with provisions of the Open Meetings Act, the City Council may not deliberate on items discussed under this agenda item. The Council may refer this item to the City Manager or direct this item to be placed on the next regular Council agenda. PowerPoint presentations are not conducted during the citizen comment period. Out of respect for those speaking during public comment, please refrain from any outbursts or interjections to include, but not limited to, applause and/or disparaging noises from the audience. Doing so discourages others from voicing their thoughts and opinions, and disrupts the meeting.)
5. WORK SESSION
 - A. Joint work session with Planning and Zoning Commission regarding:
 1. Amendments to Appendix B, Subdivision Ordinance and Appendix C, Zoning Ordinance and the Design Criteria Manual in an effort to increase the beautification standards of the City; and
 2. Discussion regarding separate public hearings vs. joint public hearings

6. **CLOSED EXECUTIVE SESSION** – (Executive Conference Room/Adjacent to Council Chambers-City Hall)
 - A. Communications from the Public regarding Executive Session topics.
 - B. Council may convene into Executive Session in accordance with Texas Government Code, pursuant to Section 551.071: Consultation with Attorney about pending litigation, Cause No. 18-CV-0687; Christine Audibert v. Zoning Board of Adjustment of the City of Friendswood, Texas; in the 405th Judicial District Court of Galveston County, Texas, with possible discussion and action related thereto in open session.
7. **RECONVENE INTO OPEN SESSION**
8. **Special Recognition and Acknowledgements**
 - A. Recognize Westwood Elementary School Students
 - B. Recognition of the following members of the Friendswood Police Department and the Friendswood Volunteer Fire Department/EMS for their vital assistance managing a pediatric patient they responded to on Sunday January 6, 2019.
 1. Reynell Lundry and Ashley Hempel, Telecommunications Officers (TCO)
 2. David McCord, Friendswood Volunteer Fire Department Medic
 3. Shaun McCaffrey, Marcelo Bini, and James Ruthstrom, Friendswood Police Officers
 4. Assistant Chief Roy Hunter and Captain Blake Brazzel, Friendswood Emergency Medical Services (EMS)
 5. Captain Andrew Chalk, Friendswood Volunteer Fire Department Medic and Mark Lavelle, Friendswood Emergency Medical Technician (EMT)
9. **Joint Public Hearings**

To receive comments from the public, both oral and written, regarding:

 - A. Zone classification change request for a 1.91 acre tract of land out of Lot 4 (4-1) Block 11, Friendswood Subdivision & adjacent abandoned Hatcher Lane right-of-way, located at 104 Whispering Pines Ave, Friendswood, Galveston County, Texas, to change from Single Family Residential (SFR) to Downtown District (DD).
 - B. Amending Appendix B, Subdivision Ordinance of the City of Friendswood Code of Ordinances, regarding amendments to Section IV. Parkland Dedication, f. Additional Requirements to add impervious cover maximum for parks.
 - C. Amending Appendix C, Zoning Ordinance of the City of Friendswood Code of Ordinances, regarding amendments to Section 7.5 Community Overlay District to add a reference to the new dumpster screening requirements.
 - D. Amending Appendix C, Zoning Ordinance of the City of Friendswood Code of Ordinances, regarding amendments to Section 8 Supplementary District Regulations regarding landscaping and dumpster screening requirements.
10. **Communications from the Public**

(To comply with provisions of the Open Meetings Act, the City Council may not deliberate on items discussed under this agenda item. The Council may refer this

item to the City Manager or direct this item to be placed on the next regular Council agenda. PowerPoint presentations are not conducted during the citizen comment period. Out of respect for those speaking during public comment, please refrain from any outbursts or interjections to include, but not limited to, applause and/or disparaging noises from the audience. Doing so discourages others from voicing their thoughts and opinions, and disrupts the meeting.)

11. City Manager's Report

- A. Keep Friendswood Beautiful Tree Give Away Results
- B. Election Contest
- C. Friendswood in Top Ten of Safest Cities in Texas
- D. Cardiopulmonary Resuscitation (CPR) Acknowledgment
- E. Hurricane Harvey Update

12. Discussion and possible action regarding approving a contract with Galveston County for Election Services.

13. Discussion and possible action regarding approving a contract for Armored Car Services.

14. Discussion and possible action regarding approving a contract with RJN Group, Inc., for Sanitary Sewer Assessment Phase V and Phase VI.

15. Resolutions

Consideration and possible action regarding the following:

- A. Resolution R2019-03: A resolution of City of Friendswood, Texas, declaring February 5, 2019, as Westwood Elementary School Day in the City of Friendswood, Texas.
- B. Resolution R2019-04: A resolution approving and adopting updates/amendments to the "Design Criteria Manual" for the City of Friendswood, Texas; approving the standards contained therein for the design, construction and installation of public infrastructure and related facilities and improvements within the City; and repealing all prior Design Criteria Manuals and repealing other resolutions or parts of resolutions inconsistent or in conflict herewith.

16. Ordinances

Consideration and possible action regarding the following:

- A. Ordinance No. T2019-01: (Title: Second and Final reading of an ordinance amending Appendix D of the Code of Ordinances of the City of Friendswood) An ordinance of the City of Friendswood, Texas, City Council, amending Appendix D of the Friendswood City Code to establish the rates to be charged by the City for water and sewer utility services for Fiscal Years 2019-2023.
- B. Ordinance No. T2019-02: (Title: Second and Final reading of an ordinance approving the amendments to the Land Use Assumptions, the Capital Improvements Plan, the imposition of Impact Fees and amending Section 74-52(d) and Appendix D) An ordinance amending and updating Land Use Assumptions and Capital Improvements Plan and imposition of Impact Fees

pursuant to the Texas Local Government Code annotated, § 395.001 et. seq.; amending the Friendswood City Code, Chapter 74 "Taxation", Article III, Impact Fees, Section 74-52(d) and Appendix D to include updated impact fee amounts; providing a penalty in an amount not to exceed \$500 for violation of any provisions hereof by inclusion in the Code of Ordinances; repealing all ordinances or parts of ordinances inconsistent or in conflict herewith; providing for severability; and providing for publication and effective date.

- C. **Ordinance No. T2019-04:** (Title: First and Final reading ordering a General City Election to be held on May 04, 2019) An ordinance of the City Council of the City of Friendswood, Texas, calling for the holding of a General Election on May 04, 2019, for the purpose of electing two (2) Councilmembers (Position Numbers 4 and 6); ordering a Runoff Election on June 08, 2019, if necessary; and making other provisions related to the subject.
- D. **Ordinance No. T2019-05:** (First reading of an ordinance amending Appendix C "Zoning," Section 8, "Supplementary district regulations," Subsection I, "Landscaping and screening requirements", by amending various landscape requirements and amending Subsection L. "Reserved" by adding screening details for dumpsters and recycling storage containers) An ordinance amending Appendix C – "Zoning," Section 8, "Supplementary District Regulations," Subsection I, "Landscaping and Screening Requirements", by amending various landscape requirements and amending Subsection I. "Reserved," by adding screening details for dumpsters and recycling storage containers; providing a penalty for violation in an amount not to exceed \$2000, or as otherwise provided by law; repealing all ordinances or parts of ordinances inconsistent or in conflict herewith; and providing for severability.
- E. **Ordinance No. T2019-06:** (First reading of an ordinance amending Appendix C "Zoning," Section 7.5, "Community Overlay District," Subsection 3, "Screening", Subsection d, "Refuse storage areas, dumpsters, and all related activities" by adding a reference to Section 8.L. for additional screening details for dumpsters and recycling storage containers) An ordinance amending Appendix C – "Zoning," Section 7.5, "Community Overlay District," Subsection 3, "Screening", Subsection D, "Refuse Storage Areas, Dumpsters, and all Related Activities" by adding a reference to Section 8.I. for additional screening details for dumpsters and recycling storage containers; providing a penalty for violation in an amount not to exceed \$2000, or as otherwise provided by law; repealing all ordinances or parts of ordinances inconsistent or in conflict herewith; and providing for severability.
- F. **Ordinance No. T2019-07:** (First reading of an ordinance amending Appendix B "Subdivisions," Section IV, "Parkland Dedication," Subsection F, "Additional requirements", Subsection 2, guidelines used in designing parks and adjacent development, adding Subsection (G), identifying impervious cover requirements for the open space area) An ordinance amending Appendix B – "Subdivisions," Section IV, "Parkland Dedication," Subsection F, "Additional Requirements", Subsection 2, guidelines used in designing parks and adjacent development, adding Subsection (G), identifying impervious cover requirements of the open space area; providing a penalty for violation in an amount not to exceed \$2000, or as otherwise provided by law; repealing all ordinances or parts of ordinances inconsistent or in conflict herewith; and providing for severability.

- G. Ordinance No. T2019-08: (Title: First reading of an ordinance amending the zoning classification for a tract or parcel containing 1.91 acres located at 104 Whispering Pines Avenue, Friendswood, Texas, by granting a zone classification change from Single-Family Residential (SFR) to Downtown District (DD), as more fully described herein) An ordinance amending the Code of Ordinances of the City of Friendswood, Texas, Appendix C – “Zoning,” by amending the zoning classification for a tract or parcel containing 1.91 acres of land, being part of Abstract 151, Page 6, part of Lot 4 (4-1), Block 11, Friendswood Subdivision & adjacent abandoned Hatcher Lane right-of-way, Galveston County, Texas; amending the zone classification from Single-Family Residential (SFR) to Downtown District (DD); providing for amendment of the Official Zoning Map; providing a penalty in an amount not to exceed \$2,000 for each day of violation of any provision hereof; and providing for severability.
- H. Ordinance No. T2019-09: (Title: First and Final reading of an ordinance adopting Budget Amendment IV to the Original General Budget of the City for Fiscal Year 2018-2019 to provide for supplemental appropriation and/or transfer of certain funds) An ordinance amending City of Friendswood, Texas, Ordinance No. 2018-28, passed and approved October 1, 2018, same being an ordinance approving and adopting the City’s General Budget for Fiscal Year 2018-2019 by approving “Budget Amendment IV” to the “Original General Budget of the City of Friendswood, Texas, for the Fiscal Year 2018-2019”; providing for supplemental appropriation and/or transfer of certain funds; providing for severability; and providing other matters related to the subject.

17. Communications from the Mayor and Councilmembers

18. Consent Agenda

Consideration and possible action regarding the following:

- A. Approving closing Shadwell Ln. (approximately 1000 feet) for an extended period of time per the Special Event Permit Application
- B. Accepting the November 2018 Property Tax Report
- C. Approving the minutes of the January 14, 2019, Council Meeting

19. Adjournment

This facility is wheelchair accessible and accessible parking spaces are available. Requests for accommodations or interpretive service must be made two (2) business days or more prior to this meeting. Please contact the City Secretary's Office at (281) 996-3270 for further information.

I, MELINDA WELSH, CITY SECRETARY OF THE CITY OF FRIENDSWOOD DO HEREBY CERTIFY THAT THE ABOVE NOTICE OF MEETING OF THE FRIENDSWOOD CITY COUNCIL WAS POSTED IN A PLACE CONVENIENT TO THE GENERAL PUBLIC IN COMPLIANCE WITH CHAPTER 551, TEXAS GOVERNMENT CODE, ON JANUARY 31, 2019, AT 5:25 PM.

MELINDA WELSH, TRMC

CITY SECRETARY

****All meetings of City Council are open to the public, except when there is a necessity to meet in an Executive Session (closed to the public) under the provisions of Section 551, Texas Government Code. The City Council reserves the right to convene into Executive Session to hear any of the above described agenda items that qualify for an executive session by publicly announcing the applicable section number of the Open Meetings Act.**



FRIENDSWOOD CITY COUNCIL AGENDA ITEM FORM

This form should be completed and forwarded to the City Manager's Office as soon as possible prior to the first date that the item is expected to be placed on the Friendswood City Council agenda.

Date requested for City Council consideration: February 4, 2019

Date Submitted: January 10, 2019

Dept. Clearances: Steven Rhea

Prepared by: Aubrey Harbin

Subject: Proposed amendments to the Subdivision and Zoning Ordinance and Design Criteria Manual

Originating Department: Community Development

City Attorney Review: Yes

Proceeding: Joint Work Session

Degree of importance: Critical ☐ Significant ☐ Elective ☐

Expenditure Required:

Amount Budgeted:

Appropriation Required:

Source of Funds:

FINANCE APPROVAL:

MK

Morad Kabiri
City Manager

SUMMARY / ORIGINATING CAUSE

In 2014, the City of Friendswood earned Bronze Certification in the Scenic City Certification Program. Once awarded, certifications are valid for 5 years. Since it is time to renew our application (deadline March 31), staff and the Planning and Zoning Commission reviewed the Subdivision Ordinance, Zoning Ordinance and Design Criteria Manual to identify minor changes to our ordinances that could possibly assist in achieving a higher score and improved Scenic City Certification.

The mission of the *Scenic City Certification Program* is to support and recognize Texas municipalities that implement high-quality scenic standards for public roadways and public spaces. The Scenic City Certification Program provides a proven, highly-regarded tool to Texas cities for assessment, evaluation and recognition of infrastructure standards.

Staff also took this opportunity to make minor corrections needed in the Design Criteria Manual and the Zoning Ordinance.

IMMINENT CONSEQUENCES / BENEFIT TO COMMUNITY

The proposed ordinance changes will protect the character and stability of residential, commercial, institutional and industrial areas, conserve the value of land and buildings of

surrounding properties and neighborhoods, and enhance the aesthetic and visual image of the City of Friendswood. Many of the changes will also increase the potential for additional points on the Scenic City application thus raising the ranking level for the City from Bronze level to Silver, Gold, or Platinum.

RECOMMENDATIONS

The Planning and Zoning Commission Ordinance Subcommittee reviewed the proposed amendments to the Zoning Ordinance and Subdivision Ordinance and discussed the amendments with the remainder of the Commission. The Planning and Zoning Commission will make a recommendation on the proposed ordinance changes following the Joint Public Hearing.

Public Works staff recommends the changes to the Design Criteria Manual. A resolution to adopt the revised Design Criteria Manual is on the agenda for tonight.

ATTACHMENTS

[Redlined Subdivision Ordinance Change Section IV Parkland](#)
[Redlined Zoning Ordinance Changes Section 7 5 and Section 8](#)
[2019 - Design Criteria Manual](#)

Section IV. - Parkland dedication.

a. *Purpose.*

1. This section provides recreational areas in the form of city parks as a function of subdivision development in the city. This section is enacted in accordance with the home rule powers of the city under the state Constitution, and the statutes of the state, including, but not by way of limitation, V.T.C.A., Local Government Code ch. 212.
2. Park areas shall be recommended by Keep Friendswood Beautiful and shall be shown on an official parks and recreation map for the city, which shall be adopted and may be modified from time to time by the city council. Proposed city parks and recreational areas will be established by review with the developer and city staff at the earliest possible stage of development planning, and a proposed subdivision or development shall be reviewed in its entirety and not by sections or phases.
3. The primary cost of city parks should be borne ultimately by residential property owners who, by reason of the proximity of their property to such parks, shall be the primary beneficiaries of such facilities. New residents will increase the demands for parks proportionally, and new growth should bear their share of the costs of those facilities. Therefore, the following requirements are adopted to effect the purposes herein stated.

b. *General requirements.* Residentially zoned land, to be used for single-family, townhomes, garden homes, mobile homes, and/or multifamily residential purposes.

1. Whenever a final plat is filed of record with the county clerk for development of a residential area in accordance with the platting and zoning regulations of the city, such plat shall contain a clear fee simple dedication to the city of an area of land for park purposes, which area shall be equal to one acre for each 133 proposed dwellings, based on the proposed subdivision or development in its entirety and not by sections or phases. Any proposed plat submitted to the city for approval shall show the parkland proposed to be dedicated under this subsection. The dedication required by this section may be met by a payment of money in lieu of land when permitted or required by the other provisions of this subsection. The dedication required by this section should be in accordance with goals outlined within the city parks and open space master plan, or be located at the site for an identified existing park.
2. The city council declares that development of an area smaller than five acres for the purpose of a city park is impractical. Therefore, if fewer than 655 dwellings are proposed by a plat filed for approval, the developer shall be required to pay the applicable cash in lieu of land amounts provided by subsection d of this section, rather than to dedicate any land area. In most instances, no plat showing a dedication to the city of less than five acres shall be approved; provided, however, that the city may accept smaller parcels where such proposed dedication is in the best interests of the city, such as when a smaller parcel is adjacent to an existing park or future park site.
3. Developers should evaluate their proposed development and proposed dedication with city staff to ensure that as soon in the development process as possible the land dedicated is usable for city parks purposes.
4. A dedication required by this section shall be made in accordance with subsection d.1 of this section. If the actual number of completed dwelling units exceeds the figure upon which the original dedication was based, an additional dedication shall be required, and shall be made by payment of the cash in lieu of land amount provided by subsection d of this section.

c. *Timing of dedication or payment of fees in lieu of land.*

1. Parkland shall be dedicated to the city at the time of filing of the final plat of the first phase and section, if a phased development. The dedication shall be made contemporaneously by separate instrument and must be accepted by the city council prior to the filing of the final plat. Lack of acceptance of such dedication shall preclude the filing of the final plat and shall not

relieve the subdivider of complying with the requirements of this section. Where a dedication of parkland for the entirety of a phased development is proposed, the parkland shall be shown on the plat, if included within the first phase, and dedicated by separate instrument, or dedicated by separate instrument if located outside of the first phase of development, at the time of filing the final plat for the first section of such phased development.

2. Payment of fees in lieu of land shall be done at the time of filing of the final plat. Where payment of fees in lieu of land for parks for the entirety of a phased development is planned, such payment may be made in full for all phases of the proposed development at the time of filing of the plat for the first phase, or payment of fees in lieu of land for each section of a phased development may be made at the time of filing of the final plat for each phase or section, at the discretion of the developer.

d. *Fees in lieu of land.*

1. Any landowner responsible for dedication under this section shall review their proposed development with city staff, including Keep Friendswood Beautiful on recommendation of staff, prior to or simultaneously with making any formal application to the city, for the purpose of evaluating compliance with this section. If no agreement is reached between the developer and city staff, then within 14 days from receipt of a written request by the developer, city staff shall submit the issue to Keep Friendswood Beautiful. If Keep Friendswood Beautiful can reach an agreement with the developer, that recommendation shall be final, subject to the acceptance of such dedication by city council as described in this subsection d. If Keep Friendswood Beautiful cannot reach an agreement with the developer, the planning and zoning commission shall hear the issue at its next meeting, and shall make the final decision. This decision is final unless there is a substantial change in conditions. Generally, the landowner will have the option to dedicate land or pay fees in lieu thereof. However, the city expressly reserves the right to require dedication of land rather than accept fees in instances including, but not limited to, the proposed development is adjacent to an existing city park or in areas in which additional parkland is desired.
2. As provided above, any landowner responsible for dedication under this section shall, when permitted, meet the requirements of subsection c of this subsection or this subsection d in whole or in part by a cash payment in lieu of land, in the amount set forth in this section IV. Such payment in lieu of land shall be made at or prior to the time of final plat approval for city parks as described in subsection c.1 of this section.
3. A per-dwelling unit fee shall be set by resolution and printed in from time to time by the city council, incorporated in the fee schedule, Appendix D to this Code, in amounts sufficient to acquire land and provide for adjacent streets and utilities for a park.

e. *Parkland dedication fund.*

1. There is hereby established a special fund for the deposit of all sums paid in lieu of land dedication under this section or any preceding ordinance, which fund shall be known as the "parkland dedication fund." Funds shall only be released from the parkland dedication fund upon city council approval of a plan to utilize the funds to build or enhance an existing park or purchase land for a future park.
2. The city shall account for all sums paid in lieu of land dedication under this section with reference to the individual plats involved. Any funds paid for such purpose must be expended by the city within ten years after the filing of the final plat, or the filing of the final plat of each phase or section of the contributing subdivision, if a phased development. If not so expended, the owners of the property beginning on the first day after the expiration of such ten-year period shall be entitled to a pro rata refund of such sum, computed on a square footage of area basis. The owners of such property must request such refund within one year of entitlement. Such request must be made in writing to the city manager or his/her designee or such right shall be barred.

3. Where funds or a dedication for a phased development have been paid or made for the entire development at one time, and the original developer does not complete all phases of the entire development, credit for such prior dedication or payment shall be applied to subsequent plats for the same land on a pro rata basis. Increased density will require the dedication of additional parkland or payment of additional fees.

f. *Additional requirements.*

1. Any land dedicated to the city under this section must be suitable for park and recreation uses. The following characteristics of a proposed area are preferred wherever possible:
 - (a) The city reserves the right to decline any dedication of proposed parkland if it is determined to be in the best interests of the city.
 - (b) Park sites should preferably be located so that users are not required to cross arterial roadways to access them.
 - (c) Sites should be located adjacent to schools, where possible, in order to encourage both shared facilities and the potential co-development of new sites.
 - (d) Sites should be located adjacent to a greenbelt system, where possible, so that connections to a trail network may be easily achieved.
 - (e) Sites should not have unusual topography which would render the land unusable for organized recreational activities where these activities are necessary to the type of park.
 - (f) Sites should have and retain existing trees or other scenic elements.
 - (g) Land subject to an easement or a right-of-way shall comprise no more than 25 percent of the total land dedicated under the provisions of this section. In addition, any land that is subject to an easement or a right-of-way and which is dedicated under this section must be contiguous with the other area dedicated to the city and must conform with all other requirements of this section.
 - (h) All offers of dedication must be accompanied by a phase one environmental study verifying the absence of conditions which would inhibit or prohibit its future use and development as park facilities.
2. Parks should be easy to access and be open to public view so as to benefit area development, enhance the visual character of the city, protect public safety and minimize conflict with adjacent land uses. The following guidelines should be used in designing parks and adjacent development:
 - (a) Where physically feasible, parks should be bounded by streets, or by other public uses (e.g., school, library, recreation center).
 - (b) A proposed subdivision adjacent to a park may not be designed to restrict reasonable access to the park from other area subdivisions. Street or pedestrian connections to existing and future adjoining subdivisions may be required to provide reasonable access to parks.
 - (c) Where a nonresidential use directly abuts a park, the city may require the developer to construct, at his expense, screening of a minimum height of eight feet. The screened area must be landscaped on the park side. Access points from the nonresidential use to the park may be permitted.
 - (d) Alleys may abut a park, where otherwise allowed by ordinance, but they should not be designed to encourage motorized traffic to the park.
 - (e) Streets abutting a park shall be built in accordance with the thoroughfare plan and the standards of this section, provided, however, the city may require any residential street built adjacent to a park to be constructed to collector width to ensure access and prevent traffic congestion, subject to a proportionality review of the impacts generated by the

subdivision, provided, further, that the city may enter into a development agreement with the subdivider to share the costs of street construction for abutting streets.

- (f) Wildlife, existing trees and shrubs on the site shall be preserved to the greatest extent practicable.

(g) A park shall not have impervious cover exceeding 20 percent of the open space area.

Commented [BS1]: Scenic City – 5 points.

3. When parkland is acquired, the city shall reserve sufficient land to provide a minimum of 50 percent of the total street width where a street is required to abut a park.
 4. In all cases, the city shall review and may require modification of the proposed street alignment fronting on city parks and recreation areas. Developers should also provide, where possible, street or pedestrian access to all creeks or drainageways which are maintained by a homeowner association or dedicated as a drainage and floodway easement to the city or the applicable drainage district.
 5. Drainage areas may be accepted as part of a park if the drainage facilities are constructed in accordance with city engineering standards, and if no significant area of the park is cut off from access by such drainage facilities. Where the city has designated a floodplain as part of the city park system, the park design shall provide public access for all areas of the park.
 6. Any parkland proposal considered by the commission under this section shall have been reviewed by the director of community services and his recommendation given to the commission. The commission may make a decision contrary to such recommendation by a simple majority vote.
- g. *Partial credit for land, private parkland, private recreation facilities, or open space.* Keep Friendswood Beautiful, upon an affirmative recommendation of the director of community services, may reduce the amount of parkland to be deeded to the city or reduce the fees in lieu of parkland to be paid to the city as provided below.
1. A reduction from the initial parkland dedication requirement may be made where parkland within the same park area as the subdivision which generates the required conveyance is dedicated for a private park. For purposes of this subsection, the private parkland dedication shall meet the following minimum requirements:
 - (a) The park area shall be leveled and seeded by the subdivider to produce green space. The city will determine if the parkland can be left in its natural state;
 - (b) The park area shall be located within the subdivision generating the parkland requirements; and
 - (c) Restrictive covenants shall be filed of record in the appropriate county providing for the creation and operation of a homeowner association to maintain and improve such private park area, or, in the case of such private park area within a multifamily development, such as an apartment complex, provide for maintenance and improvement by the owners of the multifamily development.
 2. A reduction from the initial parkland dedication requirement may be made for recreational improvements made to private parkland within the same park area as the subdivision which generates the required conveyance. Such recreational improvements to parkland may include, but are not limited to, the following: children's play apparatus, landscaped areas, picnic areas, game court areas, playfields, swimming pools, and recreation center buildings and facilities. All improvements shall meet the same applicable regulations or codes as for like improvements on public property.
 3. A reduction from the initial parkland dedication requirement may be made for common open space, whether public or private, within the subdivision which generates the required conveyance. Such open space may be in the form of greenbelts along creek beds, or around the perimeter of the subdivision, and may include improvements such as hike and bike trails. In no case shall credit be given under this subsection for landscaped or seeded medians. A further

reduction may be given where the common open space is linked with undeveloped or developed parkland or other recreational facilities.

4. In order to receive the credits under subsection g.1, 2, or 3 of this section, the subdivider shall provide documentation to the director of community services at the time of final plat filing sufficient to establish the validity of the estimated costs that will be used to determine the reduction under this subsection. In the event that the developer proposes to construct the improvements at a later date, as in a phased development, the city may require that the developer obtain a surety bond, performance bond, or other form of guarantee that the recreational amenities will be installed within four years from the date of filing of the final plat of the first phase of the phased development. The director of community services shall evaluate the documentation submitted and shall approve the value prior to any reduction being given under this subsection. Credits are cumulative, but in no case shall credits given under this subsection exceed 100 percent of the total dedication of land or fees required for city parks under this appendix. In cases where the estimated costs of the improvements are disputed, the value shall be as finally determined by the director of the community services. If no agreement is reached between the developer and city staff, then within 14 days from receipt of written request by the developer, city staff shall submit the issue to Keep Friendswood Beautiful. If Keep Friendswood Beautiful can reach an agreement with the developer that recommendation shall be final. If Keep Friendswood Beautiful cannot reach an agreement with the developer, the planning and zoning commission shall hear the issue at their next meeting, and shall make the final decision. This decision is final unless there is a substantial change in conditions.
5. A credit may be given of up to 50 percent of the total dedication of land or fees required under this appendix where the developer makes improvements to public parks, as described under subsection g.2 of this section.
6. Credit for city parks may be based on previously installed amenities within a phased development, where amenities and recreational improvement have been constructed in earlier phases, where no parkland dedication was required, subsequent phases for which park dedication is required, may count those previously installed amenities. Under no circumstances will double credit be given for a previously installed amenity.
- h. *Minimum park improvement standards.* Prior to acceptance by the city and prior to the filing of the final subdivision plat, any parkland dedicated to the city, or developed as a private park for credit against parkland dedication under this section, shall meet the following minimum standards:
 1. The public park area shall be leveled and seeded (as deemed necessary by the city) by the subdivider to produce green space prior to the completion of the first phase of the development of the subdivision, if the development is being executed in phases. Existing trees and shrubs on the site shall be preserved to the greatest extent practicable. The subdivider will be responsible for the maintenance of the public park area for a minimum of one year after the completion of the subdivision (or the completion of the final phase or section of the subdivision), at which time the city will assume maintenance responsibilities in the park. The subdivider is also responsible for notifying each homeowner in the subdivision of the existence of any private park area and its conditions of ownership.
 2. Any improvements provided by the developer to parkland shall comply with applicable regulations and codes set forth for such improvements.

(Ord. No. 2000-01, § 2, 1-17-2000; Ord. No. 2012-24, § 1(exh. A), 11-5-2012; Ord. No. 2015-29, §1 (exh. A), 12-7-2015)

Section 7.5. - Community overlay district.

1. **General purpose and description.** The community overlay district (COD) is intended to preserve and enhance the physical characteristics of the city along its entryways and in the downtown area by promoting the safety, welfare, convenience, and enjoyment of travel along these roads; providing for unified and orderly development; and promoting and aiding economic growth. The establishment of a COD does not repeal the underlying zoning classification of property to which the COD applies. The requirements of the COD are in addition to the requirements of the underlying zoning district, with the exception of the downtown district. The COD does not apply to the DD. The DD is subject to supplementary regulations and the DD geographic limitations as shown on the official zoning map. The COD includes the following thoroughfares: FM 2351 from Friendswood City Limit to Friendswood City Limit, FM 518 from the Friendswood City Limit to the Friendswood City Limit, FM 528 from Friendswood City Limit to Friendswood City Limit, Friendswood Lakes Boulevard (also known as Brittany Bay) from Friendswood City Limit to Friendswood City Limit, Bay Area Boulevard, from Friendswood City Limit to FM 528.
2. **Boundaries.** The boundary of the COD shall be parallel to the thoroughfare right-of-way to include nonresidential properties within 300 feet from the right-of-way. If any portion of such property is within 300 feet, the entire tract is subject to the COD requirements.
3. **Screening.** The following uses on the site shall be screened to a height sufficient to completely screen the use from view at ground level. For the purposes of this subsection, the term "view from ground level" shall mean the view from public walkways situated in the adjoining rights-of-way or from vehicular traffic in the first two traffic lanes in the bordering streets of the COD.
 - a. All outside storage;
 - b. Industrial activities;
 - c. Off-street loading areas;
 - d. Refuse storage areas, dumpsters, and all related activities; [See section 8.L.](#)
 - e. Air conditioning, refrigeration, heating, and other mechanical and electrical equipment;
 - f. Microwave and satellite antennas not otherwise preempted from regulation by applicable law or regulation;
 - g. Detention ponds*; and
 - h. Garage bays fronting on the thoroughfares described in subsection 1 of this section.

An opaque screen composed of berms,** walls, fences, vegetation, or a combination of these materials between the property line and the development shall be used; however, in no case shall any of the above-mentioned activities be closer to the street than the setback line.

*If detention ponds are part of the landscaping plan, screening would not be necessary. Ponds may be located no closer than ten feet from abutting rights-of-way if the pond serves only the subject property.

**Berms used for any type of screening shall be limited to a height of three feet above finished grade at the front property line (not including detention facilities), and shall be landscaped.

4. **Utilities.** All permanent utilities serving the property shall be located underground, at the owner's expense.
5. **Landscaping.** The minimum landscaping requirements for areas within the COD shall be as follows:
 - a. All landscape buffers shall be provided with architectural and/or landscape materials to screen structures, facilities, drive areas, parking areas, etc. Shrubs shall be a minimum height of two feet when planted and shall be placed a maximum of two feet apart. Mature shrubs shall be maintained in a live or living condition to form a continuous hedge with a maximum height of three feet six inches.

Commented [BS1]: Added new section for dumpster requirements.

- b. Nothing contained in this subsection 5 shall be deemed to reduce applicable landscaping requirements contained in other sections of this Code, or any ordinance specifically applicable to a development (e.g., specific use permit or planned unit development), but instead to enhance the aesthetics along the city's major thoroughfares by requiring additional or higher percentages of landscaping.
 - c. Parking lots within the COD containing 20 parking spaces or less shall have open landscaped areas that are equal to not less than 15 percent of the parking area and drives in the parking area. The required area may be used as islands or perimeter landscaping or in any combination. A minimum of one Class 1 or Class 2 tree from the qualified tree list shall be planted and maintained for each 250 square feet, or portion thereof landscaped open space area.
 - d. Parking lots within the COD containing greater than 20 parking spaces shall have open landscaped areas equal to 20 percent of the parking area and drives in the parking area. Fifty percent of the required landscaped area must be used as islands. Perimeter landscaping shall have at least one such tree for each 30 (40 lineal feet if not located in the COD) lineal feet or fraction thereof. Each island shall have one such tree planted and maintained thereon.
 - e. If a buffer strip is required (along public rights-of-way, or to separate uses per section 8.I), the buffer shall be a minimum width of 15 feet, and shall contain not less than one tree, whether existing or planted, for each 25 lineal feet or portion thereof. Each such tree shall have a caliper of not less than two inches measured 18 inches above the natural ground level.
 - f. If, at any time, the required vegetation becomes diseased, deteriorated, or dies, the owner of the premises must replace the vegetation within 90 days of written notice from the city.
 - g. The commission may approve an alternate equal or better landscape plan in the COD, after giving due consideration to the intensity of the commercial use, the zoning classification and adjacent land uses.
6. *Architectural elements.* Garage bays or other similar large openings designed for automotive or industrial work, or designed for vehicles to drive into, shall not front a COD thoroughfare unless screened with architectural or landscaping materials as outlined under subsection 3 of this section. This prohibition shall not include drive-throughs such as are typically found at banks or fast-food establishments. In the event that COD requirements overlap at intersections, architectural requirements regarding garage bays shall apply only to the frontage on one street as designated on the site plan.
- a. *Commercial.*
 - (1) Commercial developments shall have exterior cladding of brick, masonry, stone, stucco or glass on all sides of the building. Fiber cement boards/siding are prohibited, except as trim for eaves and overhangs. These exterior facades, as well as the roof, shall be limited to earth tone colors. Color samples shall be submitted and approved as a part of the commercial site plan. The planning and zoning commission may approve alternative exterior facade materials.
 - (2) The design of walls and other structures located on the same site, including those used to screen outdoor storage areas, dumpsters, vehicles, etc., shall be constructed of the same materials as the main building on the lot. Cyclone fences are prohibited, except under limited circumstances, the commission may approve a vinyl coated cyclone fence.
 - (3) Notwithstanding subsections 6.a(1) and (2) of this section, an applicant may present to the planning and zoning commission, on the site plan, specifications which include elevation drawings of proposed alternative materials. The planning and zoning commission may approve such alternative materials if they meet or exceed the appearance and durability requirements above.
 - b. *Residential.*
 - (1) Residential developments not facing a COD thoroughfare shall be required to install a visual barrier to a minimum mature height of six feet as measured from the finished grade. The

barrier shall be set back from the street right-of-way line by a minimum of ten feet. Various materials may be utilized, including landscaped earth berms, provided the materials are durable and require low maintenance. All barriers shall be maintained by the owner of the property on which such barrier is located, or by a homeowners' association. If a homeowners' association is to provide such maintenance, the obligations therefor shall be set forth in writing, and filed of record in the same manner that other restrictive covenants are filed. Subdivision plats submitted for residential property along a COD corridor shall include detailed information and visual representations of the proposed barrier, and such other information as deemed necessary by the planning and zoning commission to establish compliance with this subsection.

- (2) Trees shall be planted adjacent to the barrier, on the COD thoroughfare side, at intervals of 25 feet, with one-half having a minimum caliper of four inches and one-half having a minimum caliper of two inches. Existing qualified trees may be counted toward fulfillment of this requirement, provided that the size, species, and guaranteed duration shall meet the criteria of the landscaping section of this appendix. (Clustering of trees shall be permitted, provided, however, clustering shall not reduce the number of required trees, and trees shall not be clustered so as to lessen the survival rate of other trees.)

(Ord. No. 99-37, § 1, 10-18-1999; Ord. No. 2000-25, §§ 2—5, 8-24-2000; Ord. No. 2004-07, § 1, 8-16-2004; Ord. No. 2006-15, §§ 2, 3, 7-24-2006; Ord. No. 2007-18, § 1, 10-15-2007; Ord. No. 2008-38, § 1, 11-3-2008; Ord. No. 2010-37, § 1, 1-10-2011; Ord. No. 2013-10, § 2, 5-6-2013)

Section 8. - Supplementary district regulations.

- A. *Visibility at intersections in residential districts.* On a corner lot in any residential district, hedges and vegetation shall not be planted or allowed to grow in such a manner to materially impede vision between a height of 2½ feet and ten feet above the centerline grades of the intersecting streets in the area bounded by the street lines on such corner lots and a line joining points along said street lines 25 feet from the point of the intersection.
- B. *Fences and walls.* Except as provided below, fences and walls are permitted in or along the edge of any required yard. However, no fence or wall shall be constructed on any exterior side yard so as to constitute a hazardous visual obstruction to traffic in any direction, and the same must conform to subsection A of this section. Additionally, fences and walls may only be constructed in front yards on lots adjacent to FM 528, FM 2351, and FM 518 north of FM 2351 and south of FM 528 or on lots greater than two acres, provided that no hazardous visual obstruction is created. On residential lots, decorative, transparent fences may be constructed in front yards on lots greater than two acres or that have a minimum lot width of 150 feet at the street. Chain-link and barbed wire fences are prohibited in the front yards in residential districts. Additionally, all fences must be installed with the finished side facing outward. Exception: any size lot may construct a fence when all adjoining lots facing the same right-of-way or private street have existing compliant fences in the front yard.
- C. *Accessory buildings.* Except as specifically permitted by this appendix, no accessory building shall be erected in any required yard, and no separate accessory building shall be erected within five feet of any other buildings.
- D. *Erection of more than one principal structure on a lot.* In any district, more than one structure housing a permitted or permissible principal use may be erected on a single lot, provided that yard, street frontage, and other requirements of this appendix shall be met for each structure as though it were on an individual lot.
- E. *Structures to have access.* Every building hereafter erected shall be on a lot adjacent to a public street, an approved private street, or provide written documentation for shared access agreements, and all structures shall be so located on lots as to provide safe and convenient access for servicing, fire protection, shared parking and/or off-street parking.
- F. *Off-street parking and loading regulations.* It is the intent of this section to ensure that adequate off-street parking is provided with the construction, alteration, remodeling or change of use of any building or change of use of land. Specific guidelines regarding recommended off-street parking spaces and parking lot geometrics shall comply with the requirements of the current design criteria.
 - a. Approval by the commission shall be required of parking area layouts and design of all off-street parking, including shared parking areas, with the recommendation by the city engineer. The city engineer shall render to the commission his recommendation regarding the usability of the proposed parking spaces, and the adequacy of vehicular circulation patterns.
 - b. Downtown district parking. To promote pedestrian friendly environments, shared parking and shared parking access is encouraged. Head-in parking may be allowed in the DD with the approval of the commission, upon recommendation of the city engineer, in areas at least 400 feet from FM 518 and/or FM 2351. No on-street parking shall be allowed on FM 518 or on FM 2351 within the DD. Parking spaces and parking lot geometrics shall comply with the requirements of the current design criteria.
- G. *Off-street loading regulations.* The intent of this section is to ensure that an adequate off-street loading area is provided with the construction, alteration, or change of use of any business building or structure, or with any change in land use.
 - 1. The owner and the occupier of any property upon which a business is located shall provide loading and unloading areas of sufficient number and facility to accommodate on such business premises all vehicles that will be reasonably expected to simultaneously deliver or receive materials or merchandise, and of sufficient size to accommodate all types of vehicles that will be reasonably expected to engage in such loading or unloading activities.

2. Any person desiring a building permit for the construction, alteration, or change of use of the land or any business building or structure shall submit a plot plan to the building official designating the number, dimensions and locations of all loading areas and all proposed avenues of ingress and egress to the property from adjacent public thoroughfares. The building official shall not issue such permit if it is determined that the proposed loading and unloading facilities will present a direct or indirect hazard to vehicular or pedestrian traffic.

H. *Modification of standards proposed within a PUD.*

1. Following adoption of a PUD ordinance pursuant to this section, all subsequent plans prepared for the development or any portion of the property within a PUD must substantially conform to the approved plan in accordance with the standards of the PUD ordinance, this section, and all other applicable ordinances of the city.
2. The city recognizes that market conditions may alter the development of a large PUD and hereby provides that alterations in the land area or square footage, as appropriate, covered by a category of use, may be varied by not more than 25 percent. In no case shall such variations change traffic or circulation patterns, substantially alter the number or arrangement of buildings, increase the height of buildings, lessen the amount or effectiveness of open space or landscaped buffers, or result in a greater impact on adjacent properties or neighborhoods. Percentage changes specified herein shall be the maximum change allowed; multiple changes exceeding those percentages shall not be approved administratively, but shall require the owner to submit an application for an amendment to the district standards.

I. *Landscaping and screening requirements.*

1. *Purpose.* The provisions of this subsection I for the installation and maintenance of landscaping and screening are intended to protect the character and stability of residential, commercial, institutional and industrial areas, to conserve the value of land and buildings of surrounding properties and neighborhoods, and to enhance the aesthetic and visual image of the community. In furtherance thereof, trees utilized to comply with the requirements of this subsection I shall be of a type contained in the list of qualified trees approved from time to time by the city council and contained in the city's design criteria manual ("Qualified Tree List").
2. *Perimeter landscaping and screening.*
 - a. *Adjacent property, buffer maintenance and installation.*
 - (1) When a commercial (CSC, LNC, NC, OP, DD, PUD, A-1) or industrial (LI, I, BP) use is established on a lot or premises located adjacent to any residential zoning district, or when any multiple-family dwelling use is established on a lot or premises adjacent to any property located in a single-family residential zoning district, or when an industrial use is established on a lot or premises adjacent to any property located in a commercial zoning district, a ten-foot in width landscaped open space buffer strip shall be installed and maintained by the owner, developer or operator of the multiple-family dwelling, commercial or industrial property between it and the adjacent protected property.
 - (2) In addition, an eight-foot-high opaque fence or wall shall be erected and maintained along the common property line. Graduated fences may be allowed by the commission, when the safety and general welfare of the public would be better protected by such design. The fence or wall shall be constructed of wood, masonry, or decorative concrete, or any combination thereof. Metal may be used only as a concealed structural element. Alternatively, some types of vegetation may be allowed for such screening, provided plantings are evergreen and dense enough to provide an opaque or substantially opaque screen. Any combination of fencing, earthen berms, and vegetation may be used to comply with the eight-foot screening requirement.
 - (3) The provisions of this subsection may not apply where the uses are separated by a driveway, easement, drainage ditch, canal, or similar features determined to provide adequate buffering to those listed herein which are a minimum width of 30 feet. The commission shall determine the required screening after giving due consideration to the

intensity of the commercial use, the zoning classification, and adjacent land uses. When a residentially zoned property is rezoned to commercial, an existing fence may, if requested by the staff, the commission, or the applicant, be removed, in whole or in part, to allow joint or shared access to parking and driving areas. Documentation may be required detailing a joint use agreement between or among property owners.

Conversely, when a single-family use is established on property adjacent to any commercial, industrial, or multiple-family zoning district, an eight-foot high opaque fence or wall shall be erected and maintained along the property line. The ten-foot buffer strip shall not in this instance be required.

a-1. *Adjacent property, buffering streets.* All land zoned commercial or industrial, as that term is defined in this section, shall have a minimum ten-foot landscaped open space adjacent to each public right-of-way located within the required yard.

b. *Trees for buffer strips.* If an open space buffer strip is required under the terms of this subsection I, not less than one tree, whether existing or planted, shall be maintained for each 25 lineal feet or portion thereof of solid open space buffer strip.

b-1. *Each such landscape trees. All required trees for landscaping* shall be not less than eight feet in height immediately upon planting and shall have a caliper of not less than two inches measured 18 inches above the natural ground level.

Commented [BS2]: Staff change.

c. *Off-street parking landscaping.*

(1) All areas, other than those located within the industrial district, that are used for parking or display of vehicles, boats, construction equipment or production equipment, shall conform to the minimum landscaping requirements of this subsection 2.c. Areas that are of a drive-in nature, such as filling stations, grocery stores, banks and restaurants also, shall conform to the minimum landscaping requirements of this subsection 2.c.

(2) It is the intent of this subsection 2.c to promote the placement of trees along the thoroughfares of the city. Therefore, at least 50 percent of the required trees shall be located between the street and any buildings. No tree other than those species listed as small trees (size 3) on the qualified tree list may be planted under or within ten lateral feet of any overhead utility wire, or over or within five lateral feet of any underground water line, sewer line, transmission line or other utility.

(3) Parking lots shall be considered small if they contain spaces for 20 or less cars. Small parking lots shall have "open" landscaped areas that are equal to not less than ten percent of the parking area and drives in the parking area. The required area may be used as islands or perimeter landscaping or in any combination. A minimum of one Class 1 or Class 2 tree from the qualified tree list shall be planted and maintained for each 250 square feet or portion thereof of landscaped open space area. Parking lots with more than 20 parking spaces shall have open landscaped areas equal to ten percent of the parking area and drives in the parking area. Fifty percent of the required landscaped area shall be used as islands. Perimeter landscaping shall have at least one such tree for each 40 lineal feet or fraction thereof. Each island shall have one such tree planted and maintained thereon.

(4) All planted islands shall have curbs of sufficient height and width to contain the planted island.

Commented [BS3]: Scenic City – 3 points.

(5) Planted islands are to integrate groundcovers and small shrubs while minimizing the use of medium to tall shrubs; and shall not obstruct visibility of pedestrians and vehicles.

Commented [BS4]: Scenic City – 5 points.

(64) Off-street parking areas that are adjacent to residentially zoned property shall have opaque fences or walls, eight feet in height above ground level, which shall be erected and maintained along the property line to provide visual screening.

(75) All trees required in this subsection 2.c shall have a caliper of not less than two inches, measured 18 inches above the natural ground level.

(8) If paving around a tree is required on private property, use porous pavements such as cast-in place, monolithic turf, and concrete combinations over specimen roots to allow water and air exchange.

Commented [BS5]: Scenic City – 3 points.

(9) All plants shall receive proper irrigation to encourage deep root growth and survivability.

Commented [BS6]: Scenic City – 2 points.

d. *Existing plant material.*

(1) Where healthy planting exists on a site, the building official shall credit the property owner for existing plants that are retained and used when calculating vegetation requirements under this section. When healthy trees exist on a site, and when they are equivalent in size and species to those required by this subsection, the building official shall credit the property owner for existing trees that are retained and used when calculating requirements under this subsection.

(2) Existing landscape areas to be retained shall be protected from vehicular encroachment and damage during and after the construction phase by appropriate barriers. Parking or storing of vehicles, equipment, or materials is not allowed within the protective root zone.

Commented [BS7]: Scenic City – 8 points.

(3) Protective barricades are to be installed around all protected trees prior to any construction activities on a development site. Barricades are to be installed a minimum of 10-feet from a protected tree or at the designated protective root zone.

Commented [BS8]: Scenic City – 2 points.

(4) Protective barricades may be removed only to prepare the development site for final landscaping activities.

Commented [BS9]: Scenic City – 3 points.

e. *Maintenance and care of trees.*

(1) *Maintenance period for trees.* For any tree installed in fulfillment of the requirements of this appendix, or any previously existing tree used in fulfillment of the requirements of this appendix, it shall be the responsibility of the then property owner to maintain such tree in a healthy condition ~~for the follow-up period~~. In the event of serious damage, disease or death of the tree, or if the tree should otherwise fail to survive said follow-up period, the then property owner shall, at his sole cost and expense, replace it with a tree that meets the requirements of this appendix, within 120 days from the date of notification by the city. ~~For purposes of this subsection e(1), the follow-up period shall be a period of two years from the date of issuance of a certificate of occupancy for each such development site or from the date of the acceptance of such development's infrastructure by the city or, in the case where both have occurred, whichever is later.~~

Commented [BS10]: Staff change. Trees should be maintained permanently.

(2) *Pruning of trees.* It shall be unlawful as a normal practice for any person, firm or city department to top any tree on public property. Topping is hereby defined as the severe cutting back of limbs to stubs larger than three inches in diameter within the tree's crown to such a degree so as to remove the normal canopy and disfigure the tree. Trees severely damaged by storms or other causes, or certain trees under utility wires or other obstructions where other pruning practices are impractical may be exempted from the requirements of this appendix at the determination of the building official.

Commented [BS11]: Staff change – Removed “follow up period”.

(3) *Maintenance of trees over rights-of-way.*

- (A) Any entity pruning trees located in public rights-of-way or in excavating in rights-of-way or in easements shall be required to notify the city building official and to prepare such plans or outline such programs as the official deems necessary. The building official's permission must be secured before such work may begin. A developer shall have the responsibility to verify that such approval has been granted prior to the installation of utilities within easements on the developer's property.
- (B) Every owner of any tree overhanging an street or right-of-way within the city shall prune the branches so that such branches shall not obstruct the light from any street lamp or obstruct the view of any street intersection and so that there shall be a clear space of eight feet above the surface of the street or sidewalk. Said owners shall remove all dead, diseased or dangerous trees, or broken or decayed limbs which constitute a menace to the safety of the public. The city shall have the right, with 14 days advance notice to the owner or agent, to prune any tree or shrub on private property when it interferes with the proper spread of light along the street from a street light or interferes with the visibility of any traffic control device or sign.

(C) It is prohibited to cut trees or clear vegetation on public rights-of-way to provide better view of off-premise signs.

Commented [BS12]: Scenic City – 5 points.

- (4) *Removal of hazardous trees.* The city shall have the right to cause the removal of any dead or diseased trees on private property within the city, when such trees constitute a hazard to life and property or harbor insects or disease which constitute a potential threat to other trees within the city. The city will notify in writing the owners of such trees. Removal shall be done by said owners at their own expense within 60 days after the date of service of notice. In the event of failure of owners to comply with such provisions, the city shall have the authority to remove such trees and charge the cost of removal on the owners' property tax notice.

f. *Preserving trees; historical significance.*

- (1) *Findings.* The founders of the city chose to locate the community in its present location because of the inspiring, tranquil beauty of the huge oaks which occupied the creek banks and surrounding terrain. The name given the new town, Friendswood, was chosen because of its apt description of the settlers members of the Friends Church, and the topographical character of the land, and the woods found in abundance along the four creeks. The city council hereby finds and determines that the preservation of the naturally wooded topography is of historical significance to the city.
- (2) *Purpose.* It is the intent of this subsection to encourage the preservation of existing trees within the city, and the historical significance thereof, and to prohibit their unwarranted destruction.
- (3) *Tree survey required.*
 - (a) A tree survey showing thereon the location of all living trees that have a caliper of 12 inches or greater, measured at a point 4½ feet above the natural ground level, shall be required for:
 - (i) All proposed development on land located in districts zoned as neighborhood commercial (NC), community shopping center (CSC), downtown district (DD), local neighborhood commercial (LNC), office park district (OPD), light industrial (LI), industrial (I), agricultural (A-1), business park (BP), planned unit development—mixed use (PUD-Mixed Use), or multifamily residential, low density (MFR-L), multifamily residential, medium density (MFR-M), and multifamily residential, high density (MFR-H);

- (ii) All proposed development on land for which a specific use permit is required by sections 7.P and 9.G; and
 - (iii) For residential developments on land located in districts zoned as single-family residential (SFR), planned unit development cluster home (PUC—Cluster Home), or multifamily residential-garden home district (MFR-GHD), provided, however, the tree survey required by this subsection shall be required only for the common areas located within those developments, such as community parks, where residents of the developments would have common access.
 - (b) If the property contains no trees fitting the description in subsection (a) of this section, no tree survey shall be required if a signed statement verifying that no such trees exist is filed with the community development office of the city (hereinafter "community development").
 - (c) The developer or owner of the property to be developed shall sign the tree survey certifying that it is, to the best of their knowledge, true and correct.
 - (d) The tree survey shall be submitted to community development concurrently with or as a part of the site plan, development permit or plat. Community development shall be authorized to review the data on-site for verification. The tree survey shall be accepted by community development or community development shall provide a notice, in writing, of its reasons for any action other than an acceptance thereof.
- (4) *Site plan to include trees.*
- (a) Every site plan submitted shall include all living trees identified on the tree survey as required by subsection I.f(3) of this section. Each such tree identified on the site plan shall bear a notation indicating the tree's status as either "protected" or "to be removed." A tree identified as "protected" indicates a tree that is not scheduled for removal during construction. A tree identified as "to be removed" indicates a tree that is scheduled for removal during construction. Each tree removed during construction shall be mitigated as required in subsection I.f(6) of this section.
 - (b) Trees identified with the notation "protected" shall also be physically marked at the development site so as to be readily distinguishable from trees that are identified on the site plan as "to be removed."
- (5) *Review and acceptance of site plan.* Community development shall review the tree survey portion of site plans to ensure compliance with the provisions of this subsection.
- (6) *Mitigation and incentives.*
- (a) Every development requiring the issuance of a development permit or the approval of a site plan or plat shall maintain a minimum of one tree from the qualified tree list for each 30 linear feet of street frontage, with such trees having a minimum caliper of two inches measured at a point 18 inches above the natural ground level.
 - (b) Class 1 or Class 2 trees, 12 inches in diameter or greater, measured at a point 4½ feet above the natural ground level, shall be counted, on a one-for-one basis, toward the minimum number of trees required by this subsection I. Trees located within a buffer zone shall not be counted unless identified as "protected."
 - (c) Mitigation shall be required, on a one-for-one basis, for every tree with a caliper of 12 inches or greater, measured at a point 4½ feet above the natural ground level, that is removed from the development site. For each such tree removed, mitigation shall be accomplished by planting one Class 1 or Class 2 tree from the qualified tree list.

- (d) New trees used for mitigation purposes or for landscaping shall have a caliper of at least three inches, measured at a point 18 inches above the natural ground level.
- (e) The landscaping plan shall clearly indicate which trees are being planted to replace trees identified as "to be removed" during development.
- (f) If, due to the nature of a proposed development and unique characteristics of land, trees cannot be planted in a sufficient number to meet the requirements hereof, a developer may elect to provide for a compensating tree to be planted elsewhere within the city. Compensating trees shall be placed on public property, as near as reasonably practicable to the development site, and may be accomplished by donating a tree in kind, or by payment to the city of such amounts as may be established from time to time by city council, based on the city's actual costs of acquisition. Compensating trees shall be planted within the time periods required for replacement trees.
- (g) To encourage maintenance of the suburban wooded character of the community, the city council may from time to time establish incentives to developments which retain more Class 1 or Class 2 category trees than is required by this subsection.

(7) *Tree protection.* Property owners shall be required to ensure that each of the trees identified as "protected" on the site plan survives ~~the follow-up period, as defined in subsection I.e.1 of this section.~~ If a tree identified as "protected" fails to survive ~~such follow-up period,~~ the property owner shall replace such tree, at its sole cost and expense, within 120 days from the date of notification by the city, with a Class 1 or Class 2 tree from the qualified tree list, which has a minimum caliper of three inches, measured 18 inches above natural ground level.

- g. *One tree required for each lot developed for single-family residential use.* Each lot developed for single-family residential use shall have one of the ~~required~~ qualified trees located in the required front yard, before a certificate of occupancy may be issued. An exception may be made by the building official for substantially wooded lots, in instances where the building official determines there is not sufficient space in the front yard for proper growth, or where the planting of the tree would constitute a hazard to persons or property.
- h. *Exception for lots used for single-family residential dwelling purposes.* Notwithstanding any other provision of this subsection I to the contrary, nothing contained herein shall be deemed to prohibit the owner or occupant of a single-family residential dwelling from trimming, pruning, or removing any tree located on a lot owned or occupied by such person as a private residence. provided that at least one tree is retained in the front yard, per Section 8.I.g.

Commented [BS13]: Staff change. Wording changed to match the Design Criteria Manual.

Commented [BS14]: Staff change for clarification.

J. *Performance standards.*

1. *Compliance required.* Except as otherwise provided herein, no land, building or structure in any district shall be used or occupied in any manner so as to create any dangerous, injurious, noxious, or otherwise objectionable fire, explosive, or other hazard; noise or vibration; smoke, dust, or other form of air pollution; heat, cold, dampness, electrical or other substance, condition or dangerous element in such a manner or in such amount as to adversely affect the surrounding area or adjoining premises. Permitted uses as set forth in this appendix shall be undertaken and maintained only if they conform to the regulations of the section.
2. *Performance standard regulations.* The following standards shall apply in the various zoning districts as indicated:
 - a. *Exterior noise.* Noise standards shall apply to all property owners within the city and shall be in accordance with chapter 54, Offenses and Miscellaneous Provisions, article IV, Noise, of the Code of Ordinances.
 - b. *Vibration.* No vibration from any use within any zoning district shall be permitted which is perceptible without instruments at any residential property line within any residential zoning district.

c. *Lighting and glare.*

- (i) *Prohibited.* It shall be unlawful for any person to cause or permit to be energized on property under his possession or control any lighting, including, but not limited to, spotlights, floodlights or similar illuminating devices which project a glare or brightness, in excess of the standards described below, directly or indirectly upon any lot, tract, or parcel of land, other than that upon which such lighting is situated, which shall annoy, disturb, injure or endanger the comfort, repose, health, peace or safety of others, within the limits of the city.
- (ii) *Permitted.* All lighting in the city consisting of spotlights, floodlights, or similar illuminating devices shall be installed, hooded, regulated and maintained by the owner or person in control thereof in such a manner that the direct beam of any such light shall be oriented so that it will not glare upon any lot, tract, or parcel of land other than that upon which it is situated and so that it will not cause or permit any illumination from direct or indirect lighting in, on, or over the ground at or beyond the boundary of the lot, parcel, or tract above the following levels:
 - 1. One footcandle where the adjacent development is zoned for nonresidential uses.
 - 2. Twenty-five hundredths (0.25) footcandle where the adjacent development is zoned for residential uses.
- (iii) *Shielding required.* All exterior light sources visible to pedestrian or vehicular off-premises traffic are required to be shielded, except as provided below, so that the light source is not visible to said pedestrian or vehicular traffic. Lights elevated on standards, for example in parking areas, shall be side-shielded on pedestrian or off-premises vehicular travel sides. Lighting mounted on low standards (such as bollard lights) is the preferred method for illuminating smaller parking areas and walkways.
- (iv) *Exceptions.*
 - (1) Unshielded lighting facing pedestrian or off-premises vehicular sides of the property shall be permitted, provided the light source is not in excess of 1,700 lumens.
 - (2) Historical-style or architectural lighting visible to pedestrian or vehicular off-premises traffic shall be permitted, provided that the fixture or fixtures does not cause or permit any illumination in, on, or over the ground at or beyond the boundary of the lot, parcel, or tract above the following levels:
 - a. One footcandle where the adjacent development is zoned for nonresidential uses.
 - b. Twenty-five hundredths (0.25) footcandle where the adjacent development is zoned for residential uses.
- (v) *Compliance required.* This appendix shall apply for all new facilities upon adoption and publication as required by law. All existing facilities with lighting in place on the date of adoption shall comply with the requirements herein within 24 months after the effective date of the ordinance from which this appendix is derived by installing shielding, redirecting lights, or other steps necessary for compliance. The commission may grant a one-time extension of up to an additional 24 months if the property owner or agent can demonstrate hardship, including undue expense related to the time requirement for facilities replacement. Further, existing publicly owned facilities shall be required to comply with the requirements herein at such time as the facilities undergo renovation to the exterior or where overall renovation exceed 50 percent of the costs of construction of the existing facilities. Welding, new construction and repairs of facilities shall be exempt from these regulations, provided, however, that no requirements will be imposed in derogation of federal or state safety and health regulations.

d. *Particulate air contaminants.* No emissions, dust, fumes, vapors, gases, or other forms of air pollution shall be permitted in violation of the rules and regulations of the state air control board and the environmental protection agency.

3. *Exceptions from performance standards.* The owner or operator of any building, structure, operation or use which violates any performance standard may file an application for a variance from the provisions thereof wherein the applicant shall set forth all actions taken to comply with said provisions and the reasons why immediate compliance cannot be achieved. The board of adjustment may grant exceptions with respect to time of compliance, subject to such terms, conditions and requirements as it may deem reasonable to achieve maximum feasible compliance with the provisions of this section. In its determinations, the board of adjustment shall consider the following:

- a. The magnitude of the nuisance caused by the violation.
- b. The uses of property within the area of impingement by the violation.
- c. The time factors related to study, design, financing and construction of remedial work.
- d. The economic factors relating to age and useful life of the equipment.
- e. The general public interest, welfare and safety.

K. *Sign regulations.* The sign regulations are printed in Appendix A to this Code.

L. ~~Reserved.~~ Screening for Dumpsters and Recycling Storage Containers

Commented [BS15]: New section.

1. Dumpsters and Recycling Collection Areas

(a) Dumpsters and recycling collection areas shall be located to minimize their visibility from public streets.

(b) Dumpsters and recycling receptacles shall be screened to a height sufficient to screen the refuse from public view.

(c) Dumpsters and recycling collection enclosures shall contain permanent walls on three (3) sides with the service opening not directly abutting a public sidewalk. The fourth side shall incorporate enclosure doors.

Commented [BS16]: Scenic City – 5 points.

(d) The opening for removal of the dumpster or recycling receptacle for collection is a minimum of twelve (12) feet to allow for proper access when it is serviced. For every dumpster added, an additional ten (10) feet in width is required.

Commented [BS17]: Scenic City – 3 points.



CITY OF FRIENDSWOOD

DEPARTMENT OF PUBLIC WORKS



DESIGN CRITERIA MANUAL



Patrick Donart, PE, CFM
Director of Public Works/City Engineer

APPROVED BY
RESOLUTION NO. 2019-XX
MARCH 2019

Changes in the 2019 revision of the City of Friendswood Design Criteria Manual shall be listed here by Section.

Changes to Section I – Graphic and Design Requirements: NONE

Changes to Section II – Wastewater Collection System:

1.04.K.34 – delete “*bubbler float system*” and insert “*submersible transducer for SCADA*”.

Changes to Section III – Water Line Distribution System:

1.05.F.1 – add the following: g. The minimum sized line for two (2) meters shall be three (3) inches or larger.

Changes to Section IV – Street Paving: NONE

Changes to Section V – Storm Drainage:

1.04.H.1.a – delete “*Subsection G, Item 6*” from the last line in this paragraph and replace with “*1.04.H.8*”.

Changes to Section VI – Site Development:

1.04.A.1 – insert the following subsection:

13. *Utility and Cable Installation*

- a. *Utility infrastructure shall be mounted on pads at ground level; if within the rights-of-way, utility infrastructure shall not block sidewalks or visibility at intersections.*
- b. *For future individual utility service, lines which originate in a public road right-of-way and extended to any building or structure shall be installed underground.*
- c. *On side streets with above-ground utility services which intersect a roadway with underground utility lines, the first pole supporting the above ground service shall be placed on such a side street at least one hundred (100) feet from the center of the roadway with the underground utilities.*

2.03.K – delete “*maximum eight (8) feet*” and replace with “*material, and appurtenances*”.

Changes to Appendix A – Attachments: NONE

Changes to Appendix B – Figures: NONE

Changes to Appendix C – Parking Group Tables:

Educational Services,
Elementary, Middle Schools:
Delete “*auditorium or gym and*” and replace with “*auditorium/gym or*”.

Educational Services,
Secondary Schools:
Delete “*auditorium or gym and*” and replace with “*auditorium/gym or*”.

Professional, Scientific , and Technical Services; Management of Companies and
Enterprises; Administrative/Support Services:
General Business Offices:
Add “1” to the first line in 2nd column before the comma in “,000 sq. ft.”.

Changes to Appendix D – Qualified Tree List: NONE

Changes to Appendix E – Downtown District Amenities: NONE

Changes to Appendix F – Culverts and Driveways Policy: NONE

Changes to Appendix G – Traffic Control Sign Policy: NONE

Changes to Appendix H – Streetlight Policy: NONE

TABLE OF CONTENTS

REVISION CHANGES

Changes to this revision of the Design Criteria Manual.

SECTIONS

- I. Graphic and Design Requirements
- II. Wastewater Collection System Design Requirements
- III. Water Line Distribution System Design Requirements
- IV. Street Paving Design Requirements
- V. Storm Drainage Design Requirements
- VI. Site Development Requirements

APPENDICES

- A. Attachments
 - 1. Lift Station Start Up Log
 - 2. Design Criteria Modification Form
 - 3. Galveston County Consolidated Drainage District Form DR-001 (Attachment 4)
- B. Figures
 - 1. Geometric Street Design Standards
 - 2. Divided Roadway Cross Sections – Urban
 - 3. Roadway Tapers for Subdivision Streets
 - 4. Undivided Roadway Cross Sections – Urban
 - 5. Typical Length of Median and Median Opening

- 6. Median Nose and Left Turn Bay Design
- 7. Cul-de-Sac
- 8. Driveway Spacing and Other Measurements
- 9. Off-Street Parking
- C. Parking Group Table
- D. Qualified Tree List
- E. Downtown District Amenities
- F. Culverts and Driveways Policy
- G. Traffic Control Sign Policy
- H. Streetlight Policy

SECTION I

GRAPHIC AND DESIGN REQUIREMENTS

1.0 GENERAL

- A. Should any portion of this Section conflict with any provisions of the Subdivision Ordinance or Zoning Ordinance, the more stringent of the latter two (2) shall govern.
- B. The City Engineer shall have the final interpretation of any provisions in this Design Criteria Manual.
- C. The City Engineer has the right to issue administrative orders or design criteria modifications for just cause related to any provisions or conditions in this Design Criteria Manual.

1.01 CHAPTER INCLUDES

Graphic and design requirements for construction drawings.

1.02 REFERENCES

The City of Friendswood Standard Details and City of Friendswood Technical Specifications, latest versions. These can be downloaded from the City's website at: www.friendswood.com/publications

1.03 DEFINITIONS

- A. CADD (Computer Aided Drafting Design) – the preparation of documents utilizing computer facilities for the production of drawings, plans, prints, and other related documents.
- B. HCFCD – Harris County Flood Control District.
- C. GCCDD – Galveston County Consolidated Drainage District.

1.04 DESIGN REQUIREMENTS

- A. Provide a cover sheet for all projects involving three or more design drawings (excluding standard detail sheets). Drawing sheet numbers shall be shown on the cover sheet or area key map. Include a vicinity map to identify project locations. Also provide current City of Friendswood Standard Details Signature Block that

has a note stating that approval is valid for only one (1) year from the date of signatures.

- B. Preliminary drawings shall be prepared on nominal twenty-four (24) inches by thirty-six (36) inches or twenty-two (22) inches by thirty-four (34) inches overall paper stock.
- C. Final drawings shall be produced by CADD on paper stock. The engineer shall also submit, at the time of plan approval, an electronic PDF and DWG version of the CADD drawings on CD-ROM of the development showing all lot lines and associated lot information, rights-of-way, easements, contour-lines, utilities, and all drainage and paving improvements.
- D. Details of special structures (not covered by approved standard drawings such as stream or gully crossings, special manholes, or junction boxes, etc.) shall be drawn with vertical and horizontal scales equal to each other, and shown on a separate sheet(s) from the Standard Detail sheets.
- E. Each set of construction drawings shall contain paving and utility key drawings indexing specific plan and profile sheets. City of Friendswood Standard Detail drawings, where applicable, shall be included. All sheets shall have standard title blocks and be sequentially numbered. Where applicable, show HCFCDD or GCCDD key drawings and numbers.
- F. A drawing index shall be shown on the overall cover sheet.
- G. Overall project layouts shall be drawn to a minimum scale of 1 inch = 100 feet and provided with a drawing index.
- H. Plan and profile sheet stationing must run from left to right, except for short streets or lines originating from a major intersection.
- I. A north arrow shall be shown on all sheets (except standard or special detail sheets) and shall be located either toward the top or to the right. This requirement is waived under the following conditions:
 - 1. Short sections of improvements fitted on a sheet that otherwise has the north arrow correctly shown.
 - 2. Stationing is intended to start from the cardinal points of the compass and proceed in the direction of construction.
- J. Standard scales permitted for plans and profiles of paving and utility construction drawings are as follows:

1. Major thoroughfares, major collectors, and boulevards over four hundred (400) feet in length, or special intersections/situation.
 - a. 1 inch = 20 feet horizontal, 1 inch = 2 feet vertical
 2. Minor collectors or local streets.
 - a. 1 inch = 20 feet horizontal, 1 inch = 2 feet vertical
 - b. 1 inch = 40 feet horizontal, 1 inch = 4 feet vertical
 - c. 1 inch = 50 feet horizontal, 1 inch = 5 feet vertical
 3. Scales in Paragraph No. 2 above are a minimum; larger scales may be used to show details of construction.
- K. Each plan and profile sheet shall have a benchmark elevation and description of the benchmark, along with a current flood zone determination statement. Also include the temporary benchmark (TBM) with their elevation and coordinates.
- L. The seal, date, and original signature of the Professional Engineer licensed to practice engineering in the State of Texas, and who is responsible for the drawings, shall be required on each sheet developed by the engineer, along with their firm's registration information. The engineer may use a stamped or embossed imprint for his/her seal; however, the embossed imprint must be shaded such that it will reproduce on prints.
- M. A copy of the final plat for new developments shall be included with the final drawings when submitted for final approval.
- N. If a roadway exists where drawings are being prepared to improve or construct new pavement or a utility, label the existing roadway width, surface type, and thickness. Pavement thickness shall be ascertained by coring with the core hole and grout filled to protect pavement prior to construction.
- O. Show all street and/or road alignments on drawings.
- P. Develop drawings to accurate scale showing proposed pavement, typical cross sections, details, lines and grade, and all existing topography within street rights-of-way, and any easement contiguous with the rights-of-way. At the intersection, the cross street details shall be shown at a sufficient distance [twenty (20) foot minimum distance outside the primary roadway rights-of-way] in each direction along the cross street in order to design adequate street crossings or transitions.

- Q. Match lines between plan and profile sheets shall not be placed or shown within cross street intersections including cross street rights-of-way.
- R. Natural ground profiles shall be shown as follows:
1. For privately-funded projects, center line profiles are satisfactory except where a difference of one-half (0.5) foot or more exists from one (1) rights-of-way or easement line to the other, in which case, dual profiles are required.
 2. For City of Friendswood projects, provide natural ground profiles at each rights-of-way line. Easement profiles shall conform to S.1 below.
- S. Basic plan and profile sheets shall contain the following information:
1. Identify all lot lines, property lines, easements, and/or rights-of-way.
 2. Label each plan sheet as to street/easement widths, pavement widths, pavement thickness where applicable, type of roadway materials, curbs, intersection radii, curve data, stationing, existing utilities (type and location), and any other pertinent feature affecting design.
 3. Show all utility lines four (4) inches in diameter or larger within the rights-of-way or construction easement in profile view. Show all utility lines, regardless of size, including franchise utility lines, in the plan view.
 4. Graphically, show flow line elevations and direction of flow for all existing ditches.
 5. Label proposed top of curb elevations and grades, except at railroad crossings. Centerline elevation and grades are acceptable only for paving without curb-and-gutters.
 6. Curb return elevations and grades for turnouts shall be shown in profile.
 7. The centerline elevation at the property line of all existing driveways shall be shown in profile.
 8. Station all esplanade noses or the centerline of all esplanade openings with esplanade width shown, both existing and proposed.
 9. The design of both roadways is required on all paving sections with an esplanade.

10. Station all Points of Curvature (PCs), Points of Tangency (PTs), radius returns, and grade change Points of Intersection (PIs) in the plan view. Station all radius returns and grade change Points of Intersection (PIs) in profile with their respective elevations.
- T. Provide a Storm Water Pollution Prevention Plan (SWPPP) with legend. See Section VI – Site Development under Design Requirements.
- U. The Drainage Plan shall have a current FEMA flood zone determination statement.
- V. All “No Objection” letters expire one (1) year after issuance.

DRAFT

SECTION II

WASTEWATER COLLECTION SYSTEM DESIGN REQUIREMENTS

1.0 GENERAL

- A. Should any portion of this Section conflict with the Subdivision Ordinance or the Zoning Ordinance, the more stringent of the latter two (2) shall govern.
- B. The City Engineer shall have the final interpretation of any provisions in this Design Criteria Manual.
- C. The City Engineer has the right to issue administrative orders or design criteria modifications for just cause related to any provisions or conditions in this Design Criteria Manual.
- D. Sanitary sewers located on private property that are not in a dedicated easement, are under the jurisdiction of the International Plumbing Code, as adopted and amended by ordinance, and will be addressed/reviewed by the Building Official.

1.01 CHAPTER INCLUDES

Criteria for the design of wastewater collection systems.

1.02 REFERENCES

- A. Texas Commission on Environmental Quality (TCEQ) – "Design Criteria for Sewerage Systems" – Texas Administration Code – Chapter 217 (current revision).
- B. Galveston County Health Department.
- C. City of Friendswood Standard Details and Technical Specifications, latest version. These can be downloaded from www.friendswood.com/publications.

1.03 DEFINITIONS

Where used in these regulations, the following terms shall be construed to carry the meanings given below:

- A. Public Sanitary Sewer – A closed conduit which conveys wastewater flow and which is located within the public rights-of-way or dedicated public easement. A public sanitary sewer (or public sewer system) is intended to serve more than one (1) "owner".
- B. Private Sanitary Sewer – A closed conduit which conveys wastewater flow and is constructed and maintained by a private entity (ies) (i.e., homeowner's association). Private sanitary sewers may be located in areas such as a private street or common area, and are subject to the design and construction requirements of the International Plumbing Code, as adopted and amended by ordinance. Private sanitary sewers must discharge to a public sanitary sewer.
- C. Sanitary Sewer Main – A sanitary sewer which receives the flow from one (1) or more lateral sanitary sewers.
- D. Lateral Sanitary Sewer – A sanitary sewer running laterally down a street, alley, or easement, which receives only the flow from the abutting property.
- E. Service Lead – A sanitary sewer which branches off a public sanitary sewer and extends to the limits of the public rights-of-way. It shall be construed as having reference to a public sanitary sewer branching off from a main or lateral sanitary sewer to serve one (1) or more houses, single-family lots, or other types of small land tracts situated in the same block with the said main or lateral sanitary sewer, but not directly adjacent thereto. Such a line shall never exceed one hundred fifty (150) feet in length. If the sanitary sewer is designed to serve more than two (2) houses, or the equivalent of two single-family residences along a street, a lateral sanitary sewer as defined above shall be constructed.
- F. Service Connection – A private sanitary sewer from a single source to the main or lateral sanitary sewer in the street, alley, or easement adjacent thereto. Service connections are covered by the International Plumbing Code, as adopted and amended by ordinance. It will be owned and maintained by the owner of the property being served by said sanitary sewer.
- G. Project Area – The area within the immediate vicinity of the public sanitary sewer to be constructed. For example, if a public sanitary sewer were to be constructed within the public rights-of-way, the project area would extend ten (10) feet to either side of the public rights-of-way. If as an example, a public sanitary sewer is to be constructed within a dedicated easement adjacent to the public rights-of-way, the project area would extend ten (10) feet to either side of the dedicated easement, depending upon the existing topographical elements, unless impacted by a permanent structure (i.e., telephone pole, trees, drainage ditches, etc.) If, as

an example, a public sanitary sewer is to be constructed within a side lot easement (if approved by the City), the same criteria would apply as for a dedicated easement adjacent to public rights-of-way.

- H. Stack – A riser pipe constructed on main or lateral sanitary sewers which are deeper than six (6) feet, measured from finished grade at manhole to facilitate construction of service leads or service connections.
- I. Force Main – A pressure-rated conduit (i.e. ductile iron pipe, pressure-rated PVC, etc.) that conveys wastewater from a pump station to a discharge point.
- J. All references hereafter to sewer, public sewer, private sewer, sewer main, lateral sewer, service lead, service connections, stack, and force mains shall mean elements of a sanitary sewer system.

1.04 DESIGN REQUIREMENTS

- A. Drawings to be furnished:

Before any main or lateral sewer is constructed and before a permit shall be issued for the construction of same, plans and profiles of the proposed sewer shall be prepared and submitted to the City for approval. All reproducible drawings and CADD files shall become the property of the City and shall remain on file in the City for the use of any person who may be interested in such information.

- B. Details to be shown on drawings:

The detailed plan view will show the exact location of public sewer lines in the street, alley, or easement with respect to the edge of the particular rights-of-way, the survey base line, and any nearby utilities, major landscaping, and other structures affecting construction.

- C. Main and Lateral Sewers

- 1. Sewers in curved easements, easements defined by property lines, and combined easements containing other public utilities shall be shown both in detailed plan and profile views.
- 2. The profile shall show other underground and surface utilities, and facilities, both in parallel and at crossings; the size, grade of the proposed line, the elevation of same to hundreds of a foot at all manholes, changes of grade and dead-ends, and the proposed finished grade over the sewer.

It shall show the actual ground line as it exists prior to construction of the sewer. Where proposed fill or cut is contemplated, the proposed new ground line shall be shown as a separate line from the actual ground line. Type of pipe and bedding shall comply with City of Friendswood Technical Specifications and Standard Details.

3. Where public sewers are to be placed between existing pavement and the street rights-of-way (or interior easement line) or under existing pavement or shoulders of pavement, show the existing ground line at both sides (or the closest side for sewers near the edge) of the rights-of-way or adjacent sewer easement.

D. Sewer mains – plan and profile required

1. Sanitary sewer layouts for single-family residential subdivisions should use a scale of one hundred (100) feet or less per inch. A scale of two hundred (200) feet per inch may be used provided the following information is shown on the layout:
 - a. All easements containing or buffering sanitary sewers shall have points of size change shown, and all manhole locations shall be shown.
 - b. The sewer alignment shall accurately reflect the relative location of the sewer as shown on the detailed plan view.
 - c. All service leads that cross street pavement or serve adjacent property shall be shown on the layout. The detail plans and profiles shall show the flow lines of all service leads at the street or easement rights-of-way.
 - d. The number and size of the lots depicted on both the overall sewer layout sheet and the individual plan and profile sheets shall match the number and size of the lots depicted on the final plat after recordation.
 - e. On the overall sanitary sewer layout sheet the size and direction of flow for all existing and proposed sewers shall be shown.
 - f. The location of the proposed sewer within the public rights-of-way, a dedicated easement adjacent to the public rights-of-way, or side lot easement (if allowed by the City).

- g. The overall sanitary sewer layout sheet shall show the area, in acres, which the proposed sewer(s) is (are) designed to serve. A location map shall be included that references the average proximity to nearby major thoroughfare and boulevard streets. The scale of the location map shall be 1 inch = 2,000 feet or less.
- 2. Non-residential subdivision sanitary sewer layouts for large areas, and with a scale of four hundred (400) feet or more per inch, shall have an additional set of layouts at not more than two hundred (200) feet per inch, with match lines and a small index map showing which portion of the overall layout that each sheet's layout represents.
- 3. Acceptable horizontal scales for the detailed plan and profile views shall be ten (10) feet, twenty (20) feet, forty (40) feet, and not more than fifty (50) feet maximum per inch. Horizontal scale for major thoroughfares and boulevards shall be 1 inch = 20 feet or less.
- 4. Acceptable vertical scales for detailed profile views shall be two (2) feet, four (4) feet, and not more than five (5) feet maximum per inch unless otherwise approved. Vertical scale for major thoroughfares and boulevards shall be 1 inch = 2 feet or less.
- 5. The plan view shall show, at a minimum, the following information for the project area:
 - a. All topographical features;
 - b. Stationing for the proposed sewers;
 - c. All existing underground and overhead utilities (i.e. telephone, gas, power, etc.);
 - d. Any significant landscaping and/or other structures which might impact construction and/or construction related activities;
 - e. The width and type of all existing and proposed easements;
 - f. All proposed service leads;
 - g. The limits of bore and/or tunnel;

- h. Locations where pressure rated pipe is to be installed at water line crossings;
 - i. Drawings for single-family residential subdivisions shall show the proposed location by stations of all service leads, service connections, and stacks. The distance from the sewer or survey base line station to the nearest existing manhole shall be shown in the plan view or on an additional sewer layout sheet with a scale no more than 1 inch = 100 feet.
- 6. The profile view shall show, at a minimum, the following information for the project area:
 - a. Underground and/or surface utilities/facilities which are either parallel to the proposed sewer or cross the proposed sewers;
 - b. The proposed sewer's diameter and grade for each manhole section;
 - c. The flow line elevation for all sanitary sewers at each manhole;
 - d. The rim elevation of all existing and proposed manholes;
 - e. The flow line elevation at each sheet "break" [i.e., from one (1) sheet to another];
 - f. Type of pipe bedding/backfill shall be noted on each plan/profile sheet;
 - g. The finished grade for proposed and existing pavement where "fill" and/or "cut" is proposed, the proposed new ground elevation line shall be shown as a separate line from the existing ground elevation line;
 - h. The existing ground elevation line for the "near side" of the public rights-of-way where a sewer is to be placed between the edge of existing pavement and the edge of the public rights-of-way;
 - i. The existing ground elevation line at the centerline of the proposed sanitary sewer where a sanitary sewer is to be placed within an existing easement;

- j. Show any proposed and/or existing pavement;
- k. The flow line elevation of all service leads where they cross the edge of the public rights-of-way or the dedicated easement adjacent to the public rights-of-way;
- l. The limits of bore and/or tunnel;
- m. Locations where pressure rated pipe is to be installed at water line crossings;
- n. The location of special backfill and/or proposed stacks shall be identified by "stations" indicated on the design plans;
- o. The location of stacks shall be labeled with stations.

E. Service leads

- 1. Service leads shall be sized in accordance with Paragraph 1.04.G of this Section.
- 2. Service leads shall be at the property line between two (2) adjoining lots, or as directed by the City. A single six (6) inch service lead located at the property line between two (2) adjoining lots would serve two (2) single-family residences with a wye placed at the end of the service lead. Do not extend the wye clean-outs beyond the edge of either the public rights-of-way or dedicated easement.
- 3. Any service lead extension of more than fifty (50) feet parallel to the street rights-of-way shall be treated as a lateral sewer.
- 4. Service leads from developments with more than seventeen thousand five hundred (17,500) gallons-per-day flow shall discharge into a proposed or existing manhole. Where the flow line of the service is thirty (30) inches or greater above the flow line of the manhole, provide a standard drop to manhole.
 - a. Service leads shall be provided to serve each lot within a proposed development;
 - b. Service leads shall be six (6) inches in diameter (minimum). If the length of a service lead exceeds one hundred (100) feet or the

width of the public rights-of-way by more than twenty (20) feet, the minimum diameter shall be eight (8) inches and a manhole shall be utilized for connection to the public sewer;

- c. Service leads with a diameter of six (6) inches shall utilize "full body" fitting (extruded or factory-fabricated) for connection to the proposed public sewer or an approved saddle-type connector for connection to an existing public sewer;
- d. Saddle-type connectors shall be installed with the "stub" oriented between the "spring line" (3 o'clock and 9 o'clock positions) and forty-five (45) degrees from the "spring line" ("1:30" and "10:30" positions). Tees (aka, "full body fittings") shall be oriented in the same manner;
- e. The service lead shall be designated to minimize the use of bends as site conditions will permit;
- f. Service leads exceeding the limits defined in 1.04.E.3 shall have a manhole at each end; as well as, a plan/profile drawing for each rights-of-way crossing. All, or part, of these service leads which are located in a public rights-of-way, alley or dedicated sanitary sewer or public utility easement may be treated as a public sewer, depending upon the location of the terminal manhole and any intermediate manholes;
- g. For all existing lots (which are not served in accordance with these guidelines) that need a service lead, if the distance to the nearest existing sewer is less than fifty (50) feet, the service lead falls under the jurisdiction of the International Plumbing Code, as adopted and amended by ordinance, and the Building Official.

F. General Requirements

- 1. Sanitary sewers shall allow for orderly expansion of the system and shall conform to the comprehensive water and sewer plan for the City of Friendswood.
- 2. Sewers shall be sized based on the minimum requirements set out in this standard and the standard wastewater flow rates as established by the City of Friendswood;

3. All sewers shall conform to the minimum requirements of the Title 30 of the Texas Administrative Code, Chapter 217 of Texas Commission on Environmental Quality (TCEQ), and Galveston County Health District.
4. Sewers shall be separated from water lines by a minimum of nine (9) feet. Where the minimum separation is not maintained, refer to Section VII for allowable clearances. Sewers crossing utilities other than water, a minimum of six (6) inches of clearance must be maintained.
5. As maintained by the City of Friendswood, the public sanitary sewer shall be defined as all sewers, including stacks and service leads, that serve more than one sewer connection, and that are located in public easements or street rights-of-way, and that are installed in accordance with these Standards.
6. Sanitary lines greater than six (6) feet deep shall require stacks to facilitate construction of service leads or service connections. Stacks shall be shown on plans with station numbers. Place stacks and wyes or tees as shown. Where no stacks are shown, it is the responsibility of the licensed plumber to place a City approved saddle for connection to the line and the responsibility of the City Project Manager to determine that such saddle is water tight and properly installed.
7. Materials and construction shall conform to latest City of Friendswood specifications with all amendments thereto, including standard leak test.
8. Unless noted otherwise, all public sewers and service leads shall be completely embedded in cement-stabilized sand to six (6) inches below the pipe, twelve (12) inches above the pipe and to six (6) inches on each side. All such bedding shall be compacted to ninety-five (95) percent standard proctor density. The cross-section so described herein shall be termed the "embedment zone."
9. Backfill all excavation areas/trenches under or within twelve (12) inches of existing or proposed pavement or shoulder of pavement with cement-stabilized sand from the top of the pipe "embedment zone" to the bottom of the subgrade. Cement-stabilized sand must develop one hundred (100) psi compression at forty-eight (48) hours. Backfill shall be compacted to ninety-five (95) percent standard proctor density.
10. The location of all special backfill and of proposed stacks shall be shown by stations in the drawings.

11. Construction notes shall designate the kind and class of pipe with exceptions to the construction notes to be shown on the plan and profile sheets.
12. Non-sanitary sewer easements or fee strips such as pipeline, power company, drainage district, railroad, etc., are in and of themselves insufficient and unacceptable to permit laying of sanitary sewers and/or force mains across or along the underlying private property or restricted non-sanitary use type of public property.
13. The final determination as to that portion of a street, alley, or easement to be occupied by a proposed sewer rests with the City Engineer who will take into consideration existing, planned and proposed facilities such as manholes, pavement, pipe/conduits, along with existing trees, shrubs, or other unique surface conditions when arriving at a decision.;
14. Where an easement for a public sewer ends at a public rights-of-way, the last manhole shall be extended into the public rights-of-way at a minimum of two (2) feet beyond the property line; or as close to the public rights-of-way as possible due to acceptable clearances required for other utilities (i.e., water line and storm sewers).
15. The drawings for the sewer shall show the location of any existing known pipe, duct, or other obstacles that might interfere with the construction of the sewer and call such to the attention of the City any known obstacles that might be encountered in constructing the sewer in any location under consideration. The Professional Engineer for the project, who shall be licensed to practice engineering in the State of Texas, shall determine the existence of pipes, ducts, and/or obstacles from a visual survey on the ground plus research of all public records and private records when available.
16. All sanitary sewer mains shall be constructed utilizing pressure rated pipe SDR 26, unless specifically approved otherwise by the City Engineer.
17. In new developments, sanitary sewer lines shall be centered in sanitary sewer line easements.

G. Line Size

1. The minimum pipe diameter for a public sanitary sewer shall be eight (8) inches.
2. Four (4) inch service leads shall be confined to the limits of the lot which they serve and shall serve only the equivalent of one (1) single-family lot. No four (4) inch sewer shall be laid in any street, alley, or rights-of-way.
3. Six (6) inch service leads shall not serve more than the equivalent of two (2) single-family lots or other types of small land tracts.
4. Four (4) inch and six (6) inch service leads for single-family residential lots shall have a minimum grade of one (1.0) percent and one-half (0.5) percent, respectively.
5. For commercial service leads such as street bores, submit a copy of the approved plumbing drawings to establish the required size of the line. The minimum size lead shall be six (6) inch.
6. All main and lateral sewers shall end in manholes, except for special and/or unusual situations that are subject to specific approval by the City Engineer.
7. All sewer lines shall be laid at a size and depth to conform to designs permitting an orderly expansion of the sewer system of the City, and so as to avoid a duplication of lines in the future.
8. The City Engineer shall have final approval as to what sizes and depths are required, along with exceptions to "lateral service leads" as previously defined.

H. Line Depth

1. The sewer should be laid with the top of the pipe a minimum of three (3) feet below finished grade or top of curb, whichever is lower.
2. Sewer laid in street rights-of-way with curb-and-gutter paved streets shall have a minimum cover of four (4) feet from the top of the pipe to the top of the curb to anticipate future sewer extension.

3. Sewers laid in street rights-of-way with crowned roads and side ditches shall have a minimum cover of five (5) feet from the average ground elevation line at the adjacent street rights-of-way to the top of pipe.
4. Where the minimum cover as specified in paragraphs H.1, H.2, and H.3 above is not possible, the sewer shall be laid in Class 150 [one hundred fifty (150) psi] pressure pipe or rigid factory made pipe with cement-stabilized sand backfill as shown on the City's Standard Details. Ductile iron pipe shall be lined with either a polyethylene or polyurethane coating as approved by the pipe manufacturer and applied by either the pipe manufacturer or an approved application. The minimum liner thickness shall be forty (40) mils.
5. Maximum depth for eight (8) inch, ten (10) inch, and twelve (12) inch collection lines shall be twenty (20) feet from average ground surface to pipe invert. Depths greater than twenty (20) feet are subject to approval by the City Engineer if justified for site-specific reasons during the preliminary engineering phase of the project design.

I. Line Grades

The following table lists the minimum and maximum grades for six (6) inch through twenty-seven (27) inch public sewers. The minimum grade is based on a minimum full pipe velocity of two (2) feet per second. The maximum grade is based on a maximum full pipe velocity of ten (10) feet per second. In both cases, the Manning Formula has been used with an "n" of thirteen-thousandths (0.013). The use of different pipe materials will not alter the use of thirteen-thousandths (0.013) for the purpose of the Design Criteria Manual.

Inside Dimension (I.D.) of Pipe in Inches	Minimum Slope (in Percent) to Develop V=2.0 ft./sec.	Maximum Slope (in Percent) to Develop V=10.0 ft./sec.
6	0.50	12.35
8	0.33	8.40
10	0.25	6.23
12	0.20	4.88
15	0.15	3.62
18	0.11	2.83
21	0.09	2.30
24	0.08	1.93
27	0.06	1.65

For sewers larger than twenty-seven (27) inches in diameter, the Professional Engineer of record, who shall be licensed to practice engineering in the State of Texas, shall determine the appropriate grade utilizing the Manning Formula, $n = 0.013$ and a full pipe velocity of two (2.0) fps minimum and ten (10.0) fps maximum.

J. Manholes

1. All manholes shall be precast concrete, unless the Professional Engineer of record, who is licensed to practice engineering in the State of Texas, submits a "cast in place" manhole design for review and approval by the City Engineer. All precast manholes are required to incorporate a "boot type connector" for sewer diameters up to twenty-four (24) inches. For sewer diameters greater than twenty-foot (24) inches, utilize either the "boot" type connector (if available) or an integral gasket. All precast manholes shall conform to the latest ASTM requirements. No manholes may be placed in the paved portion of the City rights-of-way.
2. For all public sewers, manholes shall be placed at all changes in alignment, changes in grade, junction points, dead-end mains, laterals, and at street, alley, or easement intersections as designs may require.
 - a. Sewers laid in easements shall have a manhole in each street crossed by the sewer.
 - b. The maximum distance between manholes shall be three hundred fifty (350) feet for eight (8) inch to forty-eight (48) inch pipe diameters. Spacing for lines of a diameter larger than forty-eight (48) inches shall be determined on an individual project basis.

- c. Sewers with the same or approximate flow line elevation shall intersect each other at a ninety (90) degree angle. However, where a true perpendicular intersection cannot be obtained, and where the entering sewer intersects the receiving sewer at or about the same flow line, one (1) or more manholes shall be utilized to maintain a minimum eighty (80) degree angle at the point of intersection. When the entering sewer is on the upstream side of the manhole, the minimum angle between the sewers may be reduced to a forty-five (45) degree angle; provided:
 - 1) A distinct flow channel can be maintained within the manhole when the flowline elevations of the sewers are at, or within, one (1) pipe diameter of the smaller pipe; or
 - 2) When the flow line elevation of the "entering" pipe is above the crown of the "primary" sewer and clearance can be provided between the sewers.
- d. Criteria for connections to, and utilization of, manholes:
 - 1) Where manholes are utilized to facilitate connections between public sewers, when possible the sewers shall either match the manhole's flow line or match the elevation of each other's crown or utilize a manhole drop.
 - 2) Connections between public sewers at the manhole shall adhere to the following criteria when possible:
 - a) The elevation of the crown of the discharging sewer shall either match the elevation of the crown of the receiving sewer or be approved as special cases by the City Engineer.
 - b) A standard drop connection is required when the difference in elevation between discharging sewer flowline and receiving flowline is greater than thirty (30) inches.
 - 3) The routing of service connection directly to manholes is the preferred method of termination. Where the flowline elevation of the existing sanitary sewer is more than ten

(10) feet below grade and there is no available stack, and either:

- a) The lot to be so connected is a single-family, owner-occupied, single lot residence connection to an existing manhole; or
 - b) The lot to be so connected is a single-family, owner-occupied, single lot residence connecting to a proposed manhole at the end of a cul-de-sac.
- 4) When routing an approved service connection to a manhole (see Item 3 above), the wall penetration shall not be greater than ten (10) inches in diameter and shall be cored and sealed using approved grout.
- 5) When routing an approved service connection to a manhole (see Item 3 above), the connections shall utilize a "drop (either inside or outside) and shall adhere to the following criteria:
- a) The manhole wall penetration shall be a minimum of ten (10) feet below the manhole rim elevation and shall not be greater than ten (10) inches in diameter;
 - b) The drop shall be six (6) inches in diameter and shall be constructed of SDR 26 PVC pipe (ATSM D 3034, latest edition);
 - c) The drop shall be located forty-five (45) degrees from the upstream side of the main sewer;
 - d) An internal drop shall be affixed to the manhole wall utilizing stainless steel bands and anchor bolts.
 - e) An internal drop shall terminate with a forty-five (45) degree bend. Said forty-five (45) degree bend shall not extend below the "top of pipe" elevation of receiving sanitary sewer and;

- f) The wall penetration (core) shall be sealed using a "grout" as approved by the City Engineer.
- g) All public sewers shall terminate in a manhole. Clean-outs will not be utilized except at the end of each service lead.
- h) The manhole cover shall have a minimum diameter of thirty-two (32) inches.
- i) All sanitary sewer manholes shall have inflow protectors.
- j) All manhole covers shall have the City of Friendswood seal and "SANITARY SEWER" imprinted on the lid as shown in the City of Friendswood Standard Sanitary Sewer Details.
- k) Commercial pressured discharge lines terminating in a manhole shall result in the manhole being protected by either a coating or concrete admixture to the interior walls of the manhole.

K. Lift Stations

- 1. Lift station design shall comply with the City of Friendswood Technical Specifications. In addition, it shall be confirmed that a storage volume, in the design of the wet well, shall equal to one and one-half (1.5) times the peak design flow to the lift station. Add ten (10) percent to account for volume displaced by pumps.
- 2. A natural gas standby generator shall be required for all new lift stations. The generator is required to be sized to operate all pumps during an emergency power failure.
- 3. A startup package for the pumps shall be submitted to the City Engineer before final acceptance. This package should also include a completed start up log sheet with field and product data. See Attachment 1.
- 4. Minimum site size shall be forty (40) feet by forty (40) feet. Smaller sites that are adjacent to public rights-of-way and are contiguous to green space

or similar land use areas, may be approved when adequate odor control provisions are provided.

5. Pumps shall be sized to operate at optimum efficiency. Minimum acceptable efficiency at the operating point will be sixty (60) percent unless specifically approved by the City Engineer.
6. Operation and maintenance shall be considered in the design of the station and the location of the station.
7. Wet well working volume shall be sized to allow for the recommended pump cycle of six (6) minutes for each pump.
8. Prior to installation, controls and equipment shall be approved by the City Engineer.
9. Emergency operations shall be considered. Provide fittings and a blind flange that will be readily accessible for emergency bypass pumping.
10. The inlet structure shall be designed to minimize turbulence.
11. The velocity in the force main and riser pipes shall be less than 8 feet per second and greater than three (3) feet per second.
12. The wet well shall be sized to provide adequate clearance between the pumps (refer to manufacturers recommended clearances).
13. A peak factor of four (4) shall be used for lift station design.
14. A minimum of two (2) feet of clearance shall be provided between pumps and between pump and wall.
15. Low water levels shall be at least six (6) inches above impeller, or higher if required by manufacturer.
16. Complete immersion of submersible pump motor at low water level is preferred, if possible.
17. Tie reinforcing steel in lift station bottom to wall reinforcing steel (includes caisson construction situation) to provide watertight wetwell.

18. Nuts, bolts, chains, and all other metal components within wetwell shall be stainless steel, not carbon steel.
19. Vent pipe shall be eight (8) inch minimum diameter equipped with odor control system.
20. The following Hazen-Williams Coefficient shall be used for various pipe types:

PVC	New	C = 160
	10-year	C = 140
DIP	New	C = 140
	10-year	C = 100
21. Provide board fence (either cedar or heart redwood) with steel posts set in concrete. Fence shall be at least eight (8) feet high.
22. Entrance drive to be at least fourteen (14) feet wide concrete pavement. Provide enough room to park vehicles inside lift station site.
23. Indicate method of drainage of site on site plan. Internal drainage, sheet flow and valley gutter driveways are acceptable. Drain to street or storm sewer, never onto adjacent private property.
24. Locate the control panel and wetwell hatch above the One Hundred (100) Year Flood Plain. Call out the One Hundred (100) Year Flood Plain elevation on the plans.
25. Stainless steel guide rails (or other pump removal method that avoids entering wetwell) are required for submersible pumps.
26. A tee, plug valve (or gate valve), and blind flange assembly is required on the force main on the downstream side of the discharge valves and header. This is required so truck-mounted pumps can bypass the lift station pumps and piping while maintenance work is being done on lift station.
27. Bedding for PVC force main shall be bank sand.
28. PVC force mains shall be AWWA C-900.
29. Ductile Iron Pipe (DIP) force mains shall be bedded in bank sand and polyethylene wrapped.

30. When calculating headloss in force main and piping, use of K factors on fittings, with the Hazen-Williams formula, is preferred.
31. Backfill structural excavations (wetwell, etc.) with cement-stabilized sand.
32. Lift station site plans shall be submitted in scales of 1 inch = 5 feet or 1 inch = 10 feet.
33. Provide a protective coating or concrete additive to the interior walls of the wetwell. The City Engineer shall approve coating or additive used.
34. Lift station shall be equipped with a telemetry system, approved by the City Engineer, and shall be compatible with existing systems in the City. A submersible transducer for SCADA shall be installed and connected to telemetry system to monitor status of lift station.
35. Power supply to lift station shall be three (3) phase and four hundred eighty (480) volts where possible.
36. A system of floats shall be provided to control pumps.
37. A pressure gauge suitable for application shall be installed on each discharge pipe.
38. A 1 inch minimum water service equipped with backflow prevention shall be provided at the lift station site.

L. Grease Traps/Grease Interceptors

Gravity grease interceptors shall be designed to remove grease from effluent and shall be sized in accordance with this section. Gravity grease interceptors shall also be designed to retain grease until accumulations can be removed by pumping the interceptor.

1. Each grease trap/grease interceptor shall be installed in such a manner that it can be easily accessible for inspection, cleaning, and removal of the intercepted grease. All permitting, construction, design, and inspection activities must be completed in accordance with the manufacturer's instructions and the International Plumbing Code. Additionally, the following specifications must be incorporated into grease trap design:

- a. The grease trap/grease interceptor shall be constructed with a minimum of two baffles.
 - b. Grease traps/grease interceptors are to be installed at a minimum distance of 10 feet from sinks and dishwashers to allow for adequate cooling of the wastewater. Water temperatures must be less than one hundred twenty (120) degrees prior to entering grease trap.
 - c. All grease bearing waste streams should be routed through an appropriate grease traps/grease interceptor, including: three-compartment sinks, pot/pan sinks, soup kettles, hand-washing sinks, dishwashers, mop sinks, and floor drains. *Notable Exceptions:* Drains that receive “clear waste” only, such as from ice machines, condensate from coils, and drink stations, may be plumbed to the sanitary system without passing through the grease trap.
 - d. All exterior or recessed grease traps/grease interceptors are to be installed with an effluent sampling well.
2. Requirements for traps are as follows:
- a. Equipment and facilities of a type and capacity approved by the approving authority shall be provided.
 - b. The trap shall be located in a manner that provides ready and easy accessibility for cleaning and inspection.
 - c. The trap shall be maintained in effective operating condition so as to meet an effluent oil/grease test parameter of less than one hundred (100) mg/l.
 - d. Traps shall conform to a minimum detention time of thirty (30) minutes and a maximum of sixty (60) minutes.
 - e. The minimum size shall be one thousand (1,000) gallons or greater as determined by the design engineer.

1.05 APPURTENANCES – Reserved

1.06 SUBMITTALS

A. Preliminary design – submit the following for review and comment:

1. Copies of any documents which grant approval of exceptions to the City's Design Criteria.
2. Design calculations for line sizes and grades.
3. Contour map for overall area.
4. Plan and profile sheets showing proposed improvements (City projects only).
5. Geotechnical soils report for the project (City projects only).

B. Final design – submit the following for approval:

1. Final documents of the above plus plan and profile sheets and Geotechnical soils reports for non-City projects.
2. Review prints.
3. Original drawings.

1.07 QUALITY ASSURANCE

Prepare calculations and construction drawings under the supervision of a Professional Engineer licensed to practice engineering in the State of Texas and trained in the disciplines required by the drawings. The final construction drawings must be sealed, signed, and dated by the Professional Engineer licensed to practice engineering in the State of Texas, and shall be responsible for the development of the drawings along with their firm's registration information.

2.0 EXECUTION

2.01 RESEARCH REQUIREMENTS

- A. Research existing utility and rights-of-way information.
- B. Verify that no restrictions exist that will deny approval of the project concept.

2.02 DESIGN ANALYSIS

Calculations of design flows for overall development project.

2.03 DRAWINGS

Drawings shall include layout sheets with contours, plan and profile sheets, and detail sheets for special items and treatment plants.

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SECTION III

WATER LINE DISTRIBUTION SYSTEM DESIGN REQUIREMENTS

1.0 GENERAL

- A. Should any portion of this Section conflict with the Subdivision Ordinance or the Zoning Ordinance, the more stringent of the latter two (2) shall govern.
- B. The City Engineer shall have the final interpretation of any provisions in this Design Criteria Manual.
- C. The City Engineer has the right to issue administrative orders or design criteria modifications for just cause related to any provisions or conditions in this Design Criteria Manual.

1.01 CHAPTER INCLUDES:

Criteria for the design of water lines.

1.02 REFERENCES:

- A. Texas Commission on Environmental Quality (TCEQ), Water Utilities Division "Rules and Regulations for Public Water Systems," latest revision.
- B. American Water Works Association (AWWA).
- C. National Sanitation Foundation (NSF).
- D. Texas Department of Health.
- E. Texas State Board of Insurance.
- F. City of Friendswood Standard Details and Technical Specifications, latest version. These can be downloaded from: www.friendswood.com/publications.

1.03 DEFINITIONS:

Water Line – Closed conduits designed to distribute potable water for human consumption to various areas and provide fire protection. Line size and fire protection accessory locations are dependent on distance from primary source and quantity of demand.

1.04 DESIGN REQUIREMENTS:

A. Easements for water lines.

1. Lines shall be located within street rights-of-way, permanent access easements with overlapping public utility easements, easements adjacent to street rights-of way or recorded water line easements.
2. When outside of a public street rights-of-way or permanent access easement with an overlapping public utility easement, easements must be dedicated and restricted for water lines only.
3. When possible, easements shall be contiguous with public rights-of-way.
4. Except for side lot easements, water line easements shall be contiguous to a paved access.
5. For water lines twelve (12) inches or smaller located outside of street rights-of-way, minimum width of easement shall be ten (10) feet.
6. For water lines fourteen (14) inches or larger located outside of street rights-of-way, the minimum width of easement shall be fifteen (15) feet.
7. For water mains located less than five (5) feet from the rights-of-way line, the outside edge of a water line easement shall be located from the rights-of-way line as follows:
 - Twelve (12) inch and smaller pipe – five (5) feet
 - Fourteen (14) inch and larger pipe – ten (10) feet
8. Water lines along State rights-of-way shall be installed outside of the rights-of-way whenever possible and in a separate ten (10) foot minimum contiguous easement.
9. No back lot easements shall be allowed for the installation of water lines, unless specifically approved by the City.
10. Commercial developments requiring on-site fire hydrants must provide a minimum fifteen (15) foot water line easement for the water line and fire hydrant.

11. In new developments, water lines shall be centered in water line easements.
12. When using side lot easements, such easements shall be a minimum of ten (10) feet in width, located on one (1) lot or centered between lots. If centered between lots, the water line may be centered within the five (5) foot easement on one (1) lot, or centered in the full ten (10) foot easement.
13. Location of water lines in an easement not adjoining a public rights-of-way shall be prohibited, except as specifically approved by the City Engineer. When approved, these water mains will be centered in a fifteen (15) foot wide exclusive easement restricted to water only.

B. Location of water lines.

1. Locate within street rights-of-way.
2. Location of water lines within an easement – locate water lines in the center of a ten (10) foot minimum width dedicated waterline easement. Within a commercial development, center water lines within a fifteen (15) foot easement. Obtain approval for lines to be located in wider or multi-use easements.
3. When a water main is placed parallel to another utility line at or near the same grade, it shall have a minimum of nine (9) feet of horizontal separation. When the other utility is a sanitary sewer and a minimum of nine (9) feet cannot be maintained, the sanitary sewer must be constructed of pressure type pipe with watertight joints as used in water main construction and the clearances must be defined as in the following sections or as specifically approved by the City Engineer. When a water main crosses a utility other than sanitary sewer, a minimum of six (6) inches of clearance must be maintained, and the water main shall have one (1) joint of pipe, a minimum of eighteen (18) feet long, centered on the other utility.
4. When water mains and sanitary sewers are installed, they shall be installed no closer to each other than nine (9) feet in all directions, and parallel lines must be installed in separate trenches. Where the nine (9) foot separation distance cannot be achieved, the following procedures shall be used:
 - a. Where a sanitary sewer parallels the water main, the sanitary sewer shall be constructed of ductile iron, or PVC pipe meeting AWWA specifications, having a minimum working pressure rating of one

hundred fifty (150) psi or greater, and equipped with pressure type joints. The water mains and sanitary sewer shall be separated by a minimum vertical distance of two (2) feet, and a minimum horizontal distance of four (4) feet, measured between the nearest outside diameters of the pipes, and the water main shall be located above the sewer.

- b. Where a sanitary sewer crosses the water main, and that portion of the sewer is constructed within nine (9) feet of the water, as described above, the water line may be placed no closer than six (6) inches from the sewer. The separation distance must be measured between the nearest outside pipe diameters and the water line shall be located at a higher elevation than the sewer, and one (1) joint [a minimum of eighteen (18) feet long] of the new pipe must be centered on the existing line.

C. Water line size.

1. Six (6) inch lines may be used on dead-end lines within cul-de-sacs, or if the line is less than one thousand (1,000) feet in length and interconnected between two (2) lines which are eight (8) inches in size or larger. The maximum number of fire hydrants on any length of six (6) inch line is one (1).
2. Eight (8) inch lines may be used for lines over one thousand (1,000) feet long, or when two (2) or more fire hydrants are required.
3. Twelve (12) inch and larger lines – line length, usage, etc., to be determined by a Professional Engineer of record licensed to practice engineering in the State of Texas, and approved by the City Engineer.

D. Dead-end lines.

1. Dead-end lines within public rights-of-way.
 - a. On permanent dead-end lines, other than on cul-de-sacs, the dimension of the line shall be six (6) inches and shall not exceed more than five hundred (500) feet in length from the closest interconnecting main line. In addition, it shall terminate with a fire hydrant.
 - b. On permanent dead-end lines on cul-de-sacs it will be required to reduce the pipe size successively. It is required to carry an eight

(8) inch pipe to the next to last hydrant, then from that point use a six (6) inch pipe to the line's end. It is required to place the last service as near as possible to the end, and install a fire hydrant or two (2) inch blow-off at the end of the six (6) inch line. The maximum length of this reduced line size configuration shall not exceed eight hundred (800) feet.

2. Dead-end lines with one (1) on-site fire hydrant.

- a. Six (6) inch lines may be used for lengths less than two hundred (200) feet provided domestic service is taken from the end of the line.
- b. Eight (8) inch lines may be used for lengths greater than two hundred (200) feet but less than five hundred (500) feet, provided domestic service is taken from the end of the line.

E. Depth of cover.

1. Fourteen (14) inch and smaller mains shall have a minimum cover of four (4) feet from top of curb. For open ditch roadway sections, lines fourteen (14) inches and smaller shall be installed at least three (3) feet below the ultimate flowline of the ditch or six (6) feet below natural ground at the rights-of-way line, whichever is deeper and maintain the elevation throughout that section of line.
2. Sixteen (16) inch and larger mains shall have minimum cover of five (5) feet from top of curb. For open ditch roadway sections, lines sixteen (16) inches and larger shall be installed at least three (3) feet below the flow line of the ditch or seven (7) feet below natural ground at the rights-of-way line, whichever is deeper and maintain the elevation throughout that section of line.
3. Changes in grade, to clear other utilities or underground features, may be made by deflecting pipe joints. The maximum designed deflection shall be one-half (0.5) of the manufacturer's allowable deflection. If a depth greater than eight (8) feet to the top of the pipe is required, a welded steel section shall be used. The standard depth of cover is to be maintained above the water main, and the grade change shall be made using the welded steel section. The installation of fittings for vertical deflections, or changes in elevation, shall not be allowed except with specific approval by the City Engineer.

F. Water line crossings.

1. Public and private utility crossings other than sanitary sewer.

Where a water line crosses another utility other than a sanitary sewer, a minimum of six (6) inches of clearance must be maintained between the outside wall of the water line and the outside wall of the utility being crossed.

2. Stream and Ditch Crossings.

a. Elevated Crossings.

- 1) All water lines shall be steel or restrained-joint metallic pipe, and shall extend a minimum of fifteen (15) feet beyond the last bend or to the rights-of-way line, whichever is greater.
- 2) Elevated crossings are preferred rather than underground crossings.
- 3) Use a separate elevated supporting structure for sixteen (16) inch and larger water lines, unless otherwise approved by the City Engineer. The structure shall be located a minimum of ten (10) feet from any other existing or proposed structure.
- 4) Support water lines on existing or proposed bridges. The following criteria may be used for fourteen (14) inch and smaller lines when approved in advance by the City Engineer.
 - a) Adequate structural capacity shall be required.
 - b) Sufficient clearance above the bent cap elevation shall be required for installation under a bridge.
- 5) Design elevated crossings with the elevation of the bottom of the water line above the low chord of the nearest adjacent bridge, or a minimum of one and one-half (1.5)

feet above the One Hundred (100) Year Flood Plain elevation, whichever is higher.

- 6) Extend pipe from rights-of-way to rights-of-way for crossings.
- 7) Provide sufficient span length to accommodate for the cross section of any future widening of the stream or ditch, if available.
- 8) Support the line on columns spaced to accommodate the structural capacity of the pipe, considering deflection and loading.
- 9) Base column support design on soil capacity, spacing, loading, and structural requirements.

G. Underground crossings.

1. Provide a minimum three (3) foot clearance above the top of the pipe to the ultimate flow line of the ditch.
2. Provide sufficient length to exceed the ultimate future development of the stream or ditch.
3. All water lines shall be steel or restrained joint pipe and shall extend a minimum of fifteen (15) feet beyond the last bend or to the rights-of-way, whichever is greater. In addition, the water lines shall have valves located on both sides of the crossing.

H. TxDOT highway and county road crossings

1. Extend carrier pipe from rights-of-way to rights-of-way.
2. Use welded steel pipe, or restrained joint pipe in steel casing, under existing and future roadways. The pipe shall be installed from a point fifteen (15) feet outside of the service road, or outside of pavement toward the rights-of-way, to a similar point on the other side of the highway across the rights-of-way. For highway or roadway crossings with open ditch sections, extend the casing from rights-of-way to rights-of-way.

3. Highway and county road crossings shall be constructed in conformance with the applicable requirements of where the line is located. (i.e. Texas Department of Transportation, Galveston County or Harris County)
4. When additional rights-of-way has been acquired, or will be required for future widening, the casing where required, shall be carried to within ten (10) feet of each future rights-of-way line.

I. Street crossings

1. All water mains and sprinkler line crossings, under major thoroughfare boulevards, shall be encased using a minimum SDR rated or PVC pipe as required by the City's construction detail for "Water Main Encasement." Welded steel pipe may be substituted on street crossings, when specifically approved by the City Engineer.
2. Crossings under existing concrete streets, other than major thoroughfares, shall be constructed by boring and jacking. PVC and SDR rated pipe shall be jacked into place with equipment designed for that purpose. Water may be used to facilitate boring and jacking operations. Jetting the pipe main into place shall not be permitted. When conditions exist that warrant an open cut across the existing street, approval by the City Engineer shall specifically be required.
3. All open cut installations, under existing or proposed streets, shall be backfilled as required by City's Standard Details.
4. All street crossings shall be constructed in accordance with construction plans approved by the City. All street crossings shall be inspected by a City Project Manager, and shall meet the requirements of these standards.

J. Oil and gas pipeline crossings.

Metallic pipe shall not be used when crossing oil or gas transmission lines, unless a properly designed cathodic system is approved by the City Engineer and it is properly installed. Other pipe may be used, regardless of depth, subject to approval by the City Engineer. There must be a minimum of two (2) feet of separation between the pipeline and waterline.

K. On-site fire loops within commercial and multi-family developments.

1. For commercial and multi-family developments, requiring on-site fire hydrants, the following requirements shall be complied with to allow maintenance and future repair operations:
 - a. Placement of structures or equipment pads within the easement shall not be permitted.
 - b. Provide a ten (10) foot wide longitudinal pavement joint along the easement lines where the water line is located under a driveway, paved parking, or street pavement.
- L. Additional requirements.
 1. The carrier line shall extend a minimum of one (1) foot beyond the end of the casing to allow flanged joints to be connected.
 2. For welded steel bends, extend steel pipe a minimum of five (5) feet beyond the bend.
- M. Auger (bore) construction.
 1. Use the following general criteria for establishing auger or bore sections:
 - a. Auger or bore sections shall be clearly shown on drawings.
 - b. Improved streets – use auger construction to cross the street regardless of surface. Auger length shall be calculated utilizing the roadway width, at the proposed bore location, plus an additional five (5) feet to either side of the roadway, as applicable.
 - c. Sidewalks – when the water line crosses under a sidewalk, four (4) feet or more in width and in good condition, the sidewalk shall be bored and jacked or the sidewalk shall be removed and replaced to the City of Friendswood Standard Details requirements, whichever is most cost effective. Bore and jack length shall be at least the width of the sidewalk. The proposed type of construction shall be noted on the plans.
 - d. Bore Pits – Bore pits shall be at least three (3) feet from back of curb and shall be at least five (5) feet from the back of curb on a boulevard or major thoroughfare. All bore pits shall be shored in accordance with OSHA requirements. Bore pits and/or receiving

pits to be located in a street or driveway paving, shall be shown on the plans.

N. Water quality – overall system layout.

1. Circulation and flushing – The layout of the overall water distribution system shall provide the maximum circulation of water to prevent future problems of odor, taste, or color due to stagnant water.
 - a. Provide a source of fresh water at each end, or at multiple points of a subdivision. Provide ways to create circulation, and valves and fire hydrants shall be located to allow simple flushing of all lines.
 - b. Dead-ends shall be avoided whenever possible; if absolutely necessary, dead-ends shall be isolated with a line valve, kept as short as possible, and equipped with a fire hydrant near the line's end.
 - c. Where stubs are provided for future extensions, isolate the stub with a valve, and place one (1) full pipe joint beyond the valve, plug end of pipes. Service connections are to not be connected to the stub.
 - d. Water mains shall be looped unless physically impossible.
 - e. All materials which come in contact with public drinking water in any stage shall conform to ANSI/NSF Standard 60.
 - f. Layout and size of all water mains shall be consistent with the overall layout and phasing plan of the City's water system. The overall water system shall be designed to maintain adequate pressure throughout the system.
 - g. In an unavoidable permanent dead-end situation, reduce the sizes of pipe successively. Carry an eight (8) inch pipe to the next to last fire hydrant and use a six (6) inch PVC to the end of the line. Provide a fire hydrant or two (2) inch blow-off at the end of the main.

O. Clearance of water line from other utilities. (New water lines constructed near sanitary sewers and force mains).

1. New water lines parallel to sanitary sewers and force mains.

- a. Water lines shall be located a minimum of nine (9) feet horizontally, outside wall to outside wall, when parallel to sanitary sewers or force mains. Use the following procedure when nine (9) feet of separation cannot be achieved:

When a new water line is to parallel to an existing sanitary sewer force main and/or gravity sanitary sewer, and the nine (9) foot minimum separation distance cannot be maintained, the existing sanitary sewer shall be replaced with lined ductile iron or PVC pipe meeting ASTM specifications. In addition, the waterline shall have a minimum working pressure rating of one hundred fifty (150) psi or greater, and be equipped with pressure type joints. The water lines and sanitary sewer shall be separated as per the design requirements of TCEQ, at a minimum horizontal distance of four (4) feet measured between the nearest outside walls of the pipe. In all cases, the water line shall be located above the sanitary sewer. When a water main crosses a utility other than sanitary sewer, a minimum of six (6) inches of clearance must be maintained, and the water main shall have one (1) joint of pipe [a minimum eighteen (18) feet long] centered along the other utility line.

- b. Where a sanitary sewer crosses a water main and that portion of the sanitary sewer within nine (9) feet of the water is constructed as described in Section 290.44(e) of the TCEQ Rules and Regulations, the water line may be placed no closer than six (6) inches from the sewer. The separation distance must be measured between the nearest outside pipe diameters. The water line shall be located at a higher elevation than the sanitary sewer wherever possible and one (1) joint of the new pipe [a minimum of eighteen (18) feet long] shall be centered on the existing line.

2. When water lines are installed in areas which have existing sanitary sewers, every effort should be made to maintain nine (9) feet of separation between the outside pipe diameters of the two (2) lines. Where this separation cannot be achieved because of local conditions, which must be fully documented in any planning material submitted, the following spacing's shall be observed:

- a. Where a new water line is to cross or be installed parallel with an existing sanitary sewer and the sanitary sewer is constructed as described in Section 290.44(e) of the TCEQ Rules and

Regulations, the separation distances specified in those rules shall apply as though the sanitary sewer was new.

- b. Where a new water line is to be installed parallel to an existing clay, truss, or concrete gravity sanitary sewer showing no evidence of leakage vertically and horizontally for a distance of four (4) feet, the sanitary sewer is not to be disturbed. Should excavation for the water line produce evidence that the sanitary sewer is leaking; the sanitary sewer shall be repaired.
 - c. Where a new water line is to cross an existing clay, truss, or concrete gravity sewer showing no evidence of leakage vertically or horizontally for a distance of four (4) feet, the sewer is not to be disturbed if the water line is installed at least twenty-four (24) inches above the existing sanitary sewer. One (1) full joint of the water line [at least eighteen (18) feet long] shall be centered over the sanitary sewer crossing, so as to provide maximum protection against contamination.
 - d. Where there is an existing clay, truss or concrete sanitary sewer pipe showing no evidence of leakage, and because of physical limitations shall remain at a higher elevation than the proposed intersecting water line, an exception to the nine (9) foot requirement may be granted as long as the water line is inserted in a joint of pressure type carrier pipe at least eight (8) feet and two (2) nominal sizes larger than the waterline. The carrier pipe shall be centered on the sanitary sewer crossing and both ends sealed with cement grout. In lieu of this procedure, that portion of the sanitary sewer within nine (9) feet of the water line may be replaced with cast iron or ductile iron pipe with water-tight joints as described in Section 290.44(e) of the TCEQ Rules and Regulations, above.
3. Sanitary sewer manholes – provide a minimum nine (9) foot horizontal clearance from outside wall of existing or proposed sanitary sewer manholes, unless manholes and connecting sanitary sewers can be made water-tight and tested for no leakage. If a nine (9) foot clearance cannot be obtained, the water line may be located closer to a manhole when prior approval has been obtained from the City Engineer using one (1) of the procedures below; however in no case shall the clearance be less than four (4) feet:

- a. A steel water line may be encased in a steel carrier pipe. Open cut and backfill with compacted cement-stabilized sand.
 - b. The water line may be augured past the manhole, as long as one (1) - twenty (20) foot section of C-900 PVC pipe [one hundred fifty (150) psi], is installed centered on the existing sanitary sewer manhole and a bentonite/clay mixture is utilized during the auguring process.
4. Fire hydrants shall not be installed vertically or horizontally within nine (9) feet of sanitary sewer mains, service leads, and force mains regardless of construction.

1.05 APPURTENANCES:

A. Valves.

1. Shall be set at maximum distances along water lines as follows:
 - a. Six (6) inch through fourteen (14) inch – one thousand (1,000) feet.
 - b. Sixteen (16) inch through twenty (20) inch – two thousand (2,000) feet.
 - c. The total number of valves at any intersection shall equal the total number of lines leading out from the intersection point minus one (1), three (3) valves for a cross, and two (2) valves for a tee, unless otherwise specified.

B. Valve Types.

1. Valve types (all valves shall open counterclockwise and have mechanical joints):
 - a. Six (6) inch through fourteen (14) inch – gate valves.
 - b. Sixteen (16) inch through twenty (20) inch – butterfly valves.

C. Valve Location.

1. All water lines shall be valved within the street rights-of-way. Valves shall not be placed under or within two (2) feet of ultimate pavement, except as specifically approved by the City Engineer.
2. Valves shall be located on the projection of intersecting street rights-of-way lines, or at the curb return adjoining a paved street across the main. Tapping Sleeves and Valves are excluded from this requirement.
3. Fire hydrants shall be isolated from the service line with a valve located at the fire hydrant branch. This valve shall not be located in the slope or flowline of ditches on open ditch streets.
4. Intermediate valves, not located on the projection line of the rights-of-way line, shall be located on lot lines or five (5) feet from the fire hydrants. The valves are not set in driveways or sidewalks.
5. Locate valves a minimum of nine (9) feet horizontally from sanitary sewer crossings.

D. Fire Hydrants.

1. Spacing.
 - a. Single Family Residential Development – five hundred (500) foot spacing.
 - b. Commercial, Multi-Family Developments and Multiple Single-Family Dwellings – three hundred (300) foot spacing, and at all street intersections.
2. Location in or along street rights-of-way.
 - a. Fire hydrants shall be located at street intersections where possible, but in any case, not more than the spacing noted in 1a and 1b.
 - b. Locate fire hydrants at P.C.'s of the intersection curb radius, three (3) feet behind the existing curb or location of a future curb.
 - c. On all TxDOT highways, county roads and open-ditch streets, fire hydrants shall be set within three (3) feet of rights-of-way lines.

Fire hydrants lead valves shall not be located in the slopes or flowlines of ditches.

- d. Fire hydrants located between rights-of-way intersections should be set at a lot line, however, this location may be adjusted five (5) feet either way to miss driveways or other obstructions, in which case the fire hydrant should not be closer than three (3) feet from curbed driveways or five (5) feet from non-curbed driveways.
 - e. Fire hydrants shall not be installed within nine (9) feet of a sanitary sewer system under any condition.
3. Location of fire hydrants outside the street rights-of-way.
- a. The City Fire Marshal will establish and approve the location of fire hydrants in apartment complexes, and platted private street developments within the City.
 - b. Locate fire hydrants in protected, easily accessible areas behind curb lines.
 - c. For fire hydrants, which are located adjacent to water lines constructed in ten (10) foot wide waterline easements, the fire hydrant shall be centered in a minimum ten (10) foot by ten (10) foot separate easement.
 - d. For commercial and multi-family developments, provide isolation valves at each end of fire loops requiring on-site fire hydrants.
4. Fire Flow Requirements for Buildings.
- a. The minimum fire flow requirements for one (1) and two (2) family dwellings, having a fire-flow calculation area which does not exceed three thousand six hundred (3,600) square feet, shall be one thousand (1,000) gallons per minute. Fire flow and flow duration for dwellings having a fire-flow calculation area in excess of three thousand six hundred (3,600) square feet shall not be less than that specified in Exhibit A – Table B105.1 of the International Building Code, as adopted and amended by ordinance.
5. Fire hydrants should be audited for flow and pressure, and painted per City Technical Specifications.

E. Fittings.

1. All fittings shall be identified and described on the construction plans.
2. Fittings are not permitted in fire hydrant leads, except as specifically approved by the City Engineer.
3. Water line fittings shall be mechanical joints only. Push-on joints may be used at special locations, if specifically approved by the City Engineer.
4. All plugs shall be provided with retention clamps.
5. Polyethylene tube encasement shall conform to the minimum requirements of "Polyethylene Encasement for Gray and Ductile Cast-Iron Piping for Water and Other Liquids", ANSI/AWWA C105, current revision. Soils within the project shall be tested in accordance with Appendix A of ANSI/AWWA C105 to adequately determine the requirements for encasement.
6. Concrete thrust blocking shall be required on all bends, tees, plugs and combinations thereof.
7. All fittings and fire hydrants shall be tied together with three-quarter (0.75) inch stainless steel all-threads and I-bolts or approved equal (i.e., Mega Lug Fittings).

F. Water main service.

1. Water main service for lines in or along street rights-of-way.
 - a. Meters two (2) inch and smaller – shall be located in rights-of-way, water line easements, or in a minimum five (5) foot x five (5) foot separate water meter easement on private property.
 - b. Meters three (3) inches and larger – shall be located at the property line or in a minimum ten (10) foot x twenty (20) foot separate water meter easement if necessary.
 - c. Meters shall be located in areas with easy access and protected from traffic and adjacent to rights-of-way whenever possible.
 - d. Meters shall not be located in areas enclosed by fences.

- e. Separate tap and service leads shall be designed for each meter.
 - f. Meters larger than two (2) inches must have a bypass assembly and coupling for easy change out. Contact the Public Works Department for additional requirements.
 - g. The minimum sized line for two (2) meters shall be three (3) inches or larger.
- 2. For proposed apartments or town homes in private street developments, provide one (1) master meter sized for the entire development. Exceptions may be granted by the City Engineer for unusual circumstances. If an exception is approved, multiple meters shall not be interconnected.
 - 3. All sprinkler and irrigation lines shall be equipped with a backflow prevention device according to its application as required by current TCEQ regulations. The backflow assembly shall be located after the water meter for an irrigation system, and in a vault near the building for a sprinkler system. A certified technician shall test applicable backflow prevention assemblies annually, and submit the results to the City.

1.06 SUBMITTALS:

- A. General – Conform to the following submittal requirements in addition to those of general procedure of the City of Friendswood.
- B. Water Line Sizes – Submit justification, calculations, and locations for proposed six (6) inch lines, and for lines twelve (12) inch and larger, for approval by the City Engineer, unless water line sizes are provided by the City in advance.
- C. Valves – Submit information for approval by the City Engineer with justification and locations for the use of sixteen (16) inch and twenty (20) inch gate valves proposed as substitutes for butterfly valves.
- D. Water Meter Service.
 - 1. A permit shall be obtained from the Building Division for meter services and metered sprinkler connections prior to construction.
 - 2. Requests for more than one (1) service meter on a proposed private street, or a multi-family development, shall be submitted to the Department of Public Works.

- E. Elevated stream or ditch crossings – Submit design calculations for support columns and column spacing.
- F. Master Development Plan – For multiple-phase developments, submit a master development plan along with construction plans.
- G. Backflow Prevention – All irrigation and sprinklers must be equipped with backflow prevention devices per current TCEQ regulations.
- H. A double check backflow prevention assembly is required for three (3) inch and larger lines.

1.07 QUALITY ASSURANCE

Prepare calculations and construction drawings under the supervision of a Professional Engineer licensed to practice engineering in the State of Texas and trained in the disciplines required by the drawings. The final construction drawings must be sealed, signed, and dated by the Professional Engineer licensed to practice engineering in the State of Texas, shall be responsible for the development of the drawings along with their firm's registration information.

2.0 EXECUTION

2.01 RESEARCH REQUIREMENTS:

- A. Research existing utility and rights-of-way information.
- B. Verify that no restrictions exist that will deny approval of the project concept.

2.02 DESIGN ANALYSIS:

- A. Water line sizes – Prepare narrative justification and calculations for proposed six (6) inch lines, and for lines twelve (12) inches and larger, unless sizing is provided by the City in advance.
- B. Elevated stream or Ditch Crossings – Prepare design calculations for support columns and column spacing.

2.03 DRAWINGS:

- A. General: Conform to the following drawing requirements, in addition to those identified within the City's Standard Water Line Details, the City's Technical Specifications, and within "Section I – Graphic Requirements" of this manual.

B. Appurtenances – Identify, describe, and enclose in rectangular box on drawings.

1. Valves

- a. Designate six (6) inch through twelve (12) inch gate valves with box as GV&B.
- b. Provide complete description and size for other valves.

2. Water meters, service leads, and metered sprinkler connections.

- a. Show the location of service line tees, tapping sleeve valves, valve boxes, and temporary plugs to be installed to serve future three (3) inch or larger meters.
- b. Develop plan and profile sheets for four (4) inch and larger leads, and connections that cross public rights-of-way or other utilities.

C. Construction features.

Show all special construction features required to complete the project, in a safe, convenient, and economical manner.

D. Auger Construction.

1. If the construction is predominately open cut, all portions of the street that must be augured shall be clearly shown on drawings by location and length. Include designation of sections at trees with six (6) inches or larger diameters, located within ten (10) feet of a water line.
2. Curbs – Include a requirement on drawings for construction of ADA ramps at street intersections where curbs are to be removed, or are damaged by water line construction. Conform to the City's Standard Details for ADA ramps.

SECTION IV

STREET PAVING DESIGN REQUIREMENTS

1.0 GENERAL

- A. Should any portion of this Section conflict with the Subdivision Ordinance or the Zoning Ordinance, the more stringent of the latter two (2) shall govern.
- B. The City Engineer shall have the final interpretation of any provisions in this Design Criteria Manual.
- C. The City Engineer has the right to issue administrative orders or design criteria modifications for just cause related to any provisions or conditions in this Design Criteria Manual.

1.01 CHAPTER INCLUDES

Geometric design guidelines for streets, criteria for street paving, and standard paving notes for drawing call outs.

1.02 REFERENCES

- A. ASHTO – American Association of State Highway and Transportation Officials.
- B. ASTM – American Society for Testing Materials.
- C. ACI – American Concrete Institute.
- D. TMUTCD – Texas Manual on Uniform Traffic Control Devices.
- E. City of Friendswood Standard Details and Technical Specifications, latest version. These can be downloaded from www.friendswood.com/publications.

1.03 DEFINITIONS

- A. Geotechnical Engineer – An engineer certified by the American Association for Laboratory Accreditation (A2LA).
- B. HMAC – Hot Mix Asphaltic Concrete.

- C. Curb-and-Gutter Streets – Full-width reinforced concrete pavement or asphaltic pavement with curbs. Curb-and-gutter streets require inlets and underground storm sewers.
- D. Open-Ditch Streets – Full-width reinforced concrete pavement or asphaltic pavement with open ditches. Open-ditch streets do not require underground storm sewers; however, the ditches shall be designed to accommodate the storm water runoff.

1.04 DESIGN REQUIREMENTS

The following design requirements are applicable to all street pavement constructed within rights-of-way.

A. General:

1. All paving and construction plans for all streets shall be approved by the City Engineer.
2. Street design shall conform to all applicable planning tools, such as the Texas Manual on Uniform Traffic Control Devices, major thoroughfare plans, master plans, etc. Other considerations for design shall include street function, street capacity, service levels, traffic safety, pedestrian safety, and utility locations. These additional considerations may affect the minimum requirements set forth herein. Refer to the City of Friendswood Major Thoroughfare Plan for streets requiring additional considerations.
3. Designs shall conform to the City of Friendswood Standard Details and Technical specifications.
4. The use of individual pavers are not allowed in the City of Friendswood rights-of-way. The only exception for use of individual pavers in the rights-of-way is for sidewalks in the Downtown District. Stamped concrete is allowed in the City of Friendswood rights-of-way.
5. No asphalt turnouts are allowed in the City of Friendswood rights-of-way.
6. Concrete mix design shall conform to the City of Friendswood Technical Specifications.

B. Minimum Width Requirements for Concrete Paving:

1. Curb-and-gutter concrete and HMAC streets for low-density residential developments such as SFR, MFR-L, and MFR-GHD: twenty-eight (28) feet from back of curb to the back of curb.
2. Pavement for open-ditch streets used for only SFR residential developments with minimum one hundred twenty (120) foot wide lots: twenty-six (26) feet from edge of pavement to edge of pavement.
3. Streets for medium to high density residential, commercial, and collector streets: forty-one (41) feet from back of curb to back of curb, or from edge of pavement to edge of pavement.
4. Streets for major thoroughfares or boulevards: two (2) divided pavement sections of twenty-five (25) feet from back of curb to back of curb [Four (4) lane divided roadway], or two (2) pavement sections thirty-four (34) feet from back of curb to back of curb [six (6) lane divided].
5. Radius for cul-de-sac pavement on any street shall be a minimum of fifty (50) feet, measured from the face of curb. Radius of rights-of-way for cul-de-sacs shall be ten (10) feet greater than the cul-de-sac pavement, but not less than sixty (60) feet.

C. Minimum Thickness and Reinforcement Requirements for Concrete and HMAC Pavement:

The following requirements shall be the minimum allowable. Pavement thickness and reinforcement, not less than the minimum requirements, shall be designed by a Professional Engineer licensed to practice engineering in the State of Texas and who is responsible for the project. The design shall be based on a current soils analysis and recommendations conducted by a qualified geotechnical engineer.

1. For pavement widths twenty-eight (28) feet from back of curb to back of curb or twenty-six (26) feet from edge of pavement to edge of pavement:
 - a. Minimum concrete slab thickness shall be six (6) inches with a f_c equal to three thousand (3,000) psi, and reinforcement shall be Grade 60, $f_y = 60,000$ psi, #4 deformed reinforcing bars shall be spaced at sixteen (16) inches center to center, both ways and with a minimum lap length of eighteen (18) inches. Expansion joints shall be placed at the end of each curb return, and at a maximum

- spacing of sixteen (60) feet with control joints every twelve (12) feet.
- b. Minimum stabilized subgrade thickness shall be six (6) inches.
2. For pavement widths greater than twenty-eight (28) feet from back of curb to back of curb, or twenty-six (26) feet from edge of pavement to edge of pavement, and for boulevard or major thoroughfare sections:
 - a. Minimum concrete slab thickness shall be seven (7) inches with $f_c = 3,000$ psi and reinforcement shall be Grade 60, $f_y = 60,000$ psi, #4 deformed reinforcing bars shall be spaced at sixteen (16) inches center to center, both ways, and with minimum lap length of eighteen (18) inches. Expansion joints shall be placed at the end of each curb return, at a maximum spacing of sixty (60) feet on both residential and collector streets, boulevards, and major thoroughfares, with control joints every twelve (12) feet.
 - b. Minimum stabilized subgrade thickness shall be eight (8) inches.
 3. For HMAC pavements:
 - a. Minimum thickness shall be two (2) inches.
 - b. Minimum subgrade thickness shall be eight (8) inches of stabilized crushed concrete or limestone, and six (6) inches of lime-stabilized subgrade.
- D. Subgrade Treatment: The geotechnical engineer shall base the depth of the subgrade stabilization on the structural number (SN) in conjunction with pavement thickness design. The following is general guidance for subgrade treatment:
1. For subgrade soil conditions with a clay content of ten (10.0) percent or higher, and a plasticity index (PI) of ten (10) or more, the subgrade shall be stabilized with lime. Subgrade shall be stabilized with a minimum six (6) percent lime by weight at required thickness, and compacted to ninety-five (95) percent standard Proctor density. Alternative subgrade stabilization may be substituted when specific recommendations are made by the geotechnical engineer for the project, and when specifically approved by the City Engineer.

2. For subgrade soil conditions containing clean sand with no clay content, the subgrade shall be stabilized with cement.
- E. Requirements for Intersections, Turnouts, Transitions, and Boulevards or Thoroughfares:
1. At a "T" intersection with a street that has not been improved to its ultimate width, the concrete pavement shall be stopped either at the rights-of-way line, or the end of the curb return, whichever would require less concrete removal at a future date.
 2. For roadway turnouts placed at an existing street intersection, the turnout shall be designed to fit the ultimate pavement width of the intersecting cross street and then transitioned to the existing roadway.
 3. The transition length for meeting an open-ditch street, shall be fifty (50) feet for street widths less than or equal to twenty-eight (28) feet from back of curb to back of curb; seventy-five (75) feet for twenty-nine (29) feet to forty (40) feet from back of curb to back of curb; and one hundred (100) feet for forty-one (41) feet from back of curb to back of curb or greater.
 - a. Streets other than concrete shall have transitions with a minimum thickness of eight (8) inches of lime-stabilized subgrade, six (6) inches of hot-mix asphaltic concrete base, or approved equal, with two (2) inches of hot-mix asphaltic surfacing.
 - b. Concrete streets shall have transitions with a minimum thickness of six (6) inches of stabilized subgrade and six (6) inches of concrete pavement.
 4. When paving only one section of a proposed two-section thoroughfare or boulevard (boulevard section), all left-turn lanes and esplanade crossovers shall be paved to the centerline of the street right-of-way.
- F. Requirements for Ditches on Open-Ditch Streets:
1. Minimum grade on ditches shall be two-tenths (0.2) percent.
 2. Ditch capacity shall be designed to handle the storm water runoff as determined within "Section V – Storm Drainage" section of this manual.

3. The maximum side slope shall not be steeper than three (3) horizontal to one (1) vertical.
4. Culverts for roadside ditches only shall be designed to carry the storm water runoff, but shall not be less than eighteen (18) inch diameter pipe constructed of reinforced concrete.

G. Requirements for Pavement on Curb-and-gutter Streets:

1. Inlet spacing:
 - a. Curb inlets shall be spaced and sized to intercept the calculated storm water runoff for the design storm. The design water surface elevation for the design storm flow at the inlet, shall be less than or equal to the top of curb adjacent to the inlet.
 - b. Maximum travel distance of water in the street from a high point to a curb inlet shall be three hundred (300) feet on major thoroughfares, boulevards, commercial streets and collector streets unless otherwise approved by the City Engineer. The maximum travel distance of water in the street from a high point to a curb inlet permitted on residential streets shall be three hundred (300) feet unless otherwise approved by the City Engineer.
 - c. Maximum drop of grade tangents from opposite directions to a common inlet shall be one and one-half (1.5) feet.
 - d. Curb inlets shall be located on the intersecting side street at an intersection with a higher classification street. Location of curb inlets required on a major thoroughfare, at intersections, shall be specifically approved by the City Engineer.
 - e. Backfill around inlets below grade shall be one and one-half (1.5) sacks per cubic yard of cement-stabilized sand, and to the top of the first stage of inlet.
2. Design gutter grade shall be three-tenths (0.3) percent; if the gutter grade is less than three-tenths (0.3) percent and approved by the City Engineer, then the City Engineer shall determine the required inlet spacing. The minimum acceptable gutter grade shall be two-tenths (0.2) percent.

3. Maximum cut from finished grade at property line to top of curb, shall be one and three-quarters (1.75) feet.
4. Minimum grade shall be one (1.0) percent fall around intersection turnout for a minimum radius of twenty-five (25) feet. Grades for larger radius shall be determined on an individual basis.
5. Vertical curves shall be installed when algebraic differences in intersecting grades exceed one (1.0) percent. Elevations shall be shown at ten (10) foot intervals through vertical curves. Maintain a minimum of three-hundredths (0.03) foot elevation change at ten (10) foot intervals by altering the calculated elevations.
6. When a curb-and-gutter intersects a drainage ditch, the elevation of the adjacent gutter shall be above the design water surface elevation in the ditch.
7. Minimum gutter grade around a cul-de-sac shall be six-tenths (0.6) percent.
8. Curves on major thoroughfares shall be superelevated in accordance with AASHTO whenever the centerline radius of any lane of pavement is less than two thousand (2,000) feet.
9. The amount of cross slope over the pavement section shall be shown on the drawings. The required cross slope shall be three-eighths (3/8) inch per foot from curb line to quarter point, and one-quarter (1/4) inch per foot from quarter point to the center line, and one-quarter (1/4) inch per foot for left-turn lanes.
10. A minimum grade of four-tenths (0.4) percent around the longest radius is required on an L-Type street intersection.
11. When meeting an existing upright curbed street, top of new curb elevations shall be designed to meet an elevation six (6) inches above the existing gutter/pavement, or gutters shall be matched and new top of six (6) inch curb transitioned to top of existing curb. At existing inlets, top of new curb elevations shall be designed to match existing top of existing inlets.
12. When the curb elevations are not established below the natural ground, fill lines shall be shown on the drawings and shall be of sufficient height to

ensure a minimum of three-eighths (3/8) inch per foot transverse slope toward the curb from the property line between a point, two (2) feet outside the rights-of-way and the top of curb. If this type of fill is required, and the pavement is adjacent to a nonparticipating property owner, fill easements from this property owner shall be obtained, filed, and a copy of the easements shall accompany the final drawings. Construction of this nature will require back-slope drainage design to prevent trapping storm water runoff.

13. Elevations and grades shall be labeled for all tops of curb. Centerline elevations and grades are acceptable for open-ditch sections only.

H. Requirements for Inlets on Curb-and-gutter Streets:

1. Type "BB," with grate or plate tops, or type "H-2" inlets, shall be used on all curb-and-gutter streets depending on storm water runoff requirements, unless otherwise approved by the City Engineer.
2. Inlets shall be placed at the end of pavement in order to eliminate direct drainage of storm water from the pavement gutter into an open-ditch or onto adjacent property.
3. On open-ditch streets, place stub-outs with ring grates from inlets to ditches.

I. Requirements for Curbs and Sidewalks:

1. For curbs located along the outside edges of residential streets, the standard dimensions shall be four (4) inches tall and twelve (12) inches wide. Curb height for streets other than residential shall be six (6) inches tall. The curb height on all esplanades shall be six (6) inches.
2. Sidewalks are required as set out in Section III of the Subdivision Ordinance and Section 70-66 of the Code of Ordinances. Where sidewalks are required, they shall have a minimum width of four (4) feet, except on TxDOT rights-of-way where the minimum width shall be five (5) feet.
3. Sidewalk wheelchair ramps shall be required at all intersections, and at or through all driveways where required. The design and installation of such ramps shall comply with Texas Accessibility Standards Architectural Barriers requirements.

4. All sidewalks shall be constructed in accordance with the City of Friendswood Standard Details, including through all driveways where required. The design and installation of such sidewalks shall comply with the Texas Accessibility Standards Architectural Barriers requirements.
5. The location of all proposed and existing sidewalks shall be shown on the construction drawings.

J. Requirements for Miscellaneous Items:

1. The type and amount of subgrade treatment shall be shown on the drawings.
2. Paving headers shall be placed at the end of all concrete pavements.
3. All concrete to be removed, shall be saw cut one half of the pavement depth before removal.
4. Sight distance requirements shall be based on the latest version of the AASHTO design practices.
5. Standard City of Friendswood barricades shall be placed at the end of all dead-end streets not terminating in a cul-de-sac.
6. The appropriate drainage agency approval shall be obtained before City approval is granted if the design involves a drainage way or other drainage facility.
7. A letter of agreement from the affected pipeline company(s) is required when any paving is placed over a transmission pipeline or any utility line is placed over or under such lines.
8. When new concrete pavement meets existing concrete pavement, horizontal dowels shall be used if no exposed reinforcing steel for interconnection with new pavement exists. Horizontal dowels shall be Grade 60, #5 reinforcing bars, twenty-four (24) inches long, drilled and embedded twelve (12) inches into the center of the existing slab and epoxied. Dowels shall be spaced at sixteen (16) inches center to center, unless otherwise specified.

9. Dead-end streets or ends of concrete streets designed to be extended in the future shall have paving headers and twelve (12) inches of reinforcing steel exposed beyond the pavement, coated with asphalt and wrapped with burlap, or shall have paving headers and dowel type expansion joint for future pavement tie-in.
10. Pavement extensions shall connect to the existing pavement as shown on the City of Friendswood Standard Details.
11. A design for concrete pavement thickness is required for all pavements within industrial areas and on major thoroughfares. Concrete pavement thickness design shall be based on the latest version of the AASHTO design procedures for rigid pavements.
12. The pavement structure for each roadway shall be designed based on soil data from the site, and based on the anticipated traffic volume, loading, and service life of the proposed pavement structure. The design engineer is responsible for ensuring that the pavement structure is designed to withstand the anticipated loads on the roadway.

1.05 APPURTENANCES – Reserved

1.06 SUBMITTALS – Reserved

1.07 QUALITY ASSURANCE

- A. All construction drawings and specifications shall be prepared by or under the supervision of a Professional Engineer licensed to practice engineering in the State of Texas, and all documents shall be sealed, dated, and signed by the engineer responsible for their preparation along with their firm's registration information.
- B. All geotechnical testing, environmental, and similar services for design and testing shall be performed by or under the supervision of a Professional Engineer licensed to practice engineering in the State of Texas, and trained in the science of soil analysis. All design and testing reports and documents shall be sealed, dated, and signed by the engineer responsible for their preparation along with their firm's registration information.

2.0 EXECUTION

2.01 RESEARCH REQUIREMENTS – Reserved

2.02 DESIGN ANALYSIS

- A. All pavement design shall be supported by calculations to establish the required thickness and reinforcement.
- B. The appropriate geotechnical soils report shall be the basis for design considering the use, loading, and life span of the proposed pavement.
- C. All drainage improvements shall be designed to accommodate the anticipated storm runoff.

2.03 DRAWINGS

- A. Construction drawings shall be prepared in compliance with the City of Friendswood Design Criteria Manual, Section I – Graphic and Design Requirements.
- B. Refer to The City of Friendswood Design Criteria Manual, Appendix B, Figure 1 “Geometric Street Design Standards” for additional information and guidance.

SECTION V

STORM DRAINAGE DESIGN REQUIREMENTS

1.0 GENERAL

- A. Should any portion of this Section conflict with any provisions of the Subdivision Ordinance, Zoning Ordinance, the Galveston County Consolidated Drainage District or the Harris County Flood Control District, the more stringent of the latter four (4) will govern.
- B. The City Engineer shall have the final interpretation of any provisions in this Design Criteria Manual.
- C. The City Engineer has the right to issue administrative orders or design criteria modifications for just cause related to any provisions or conditions in this Design Criteria Manual.

1.01 CHAPTER INCLUDES

Criteria for the design of storm drainage improvements.

1.02 REFERENCES

- A. City of Friendswood Standard Details and Technical Specifications, latest version. These can be downloaded from www.friendswood.com/publications.
- B. City of Friendswood Flood Damage Prevention Ordinance, Chapter 34 of the Code of Ordinances, and any subsequent revisions.
- C. Galveston County Consolidated Drainage District Criteria Manual.
- D. Harris County Flood Control District Design Criteria Manual. Ordinance No. T2007-20 amends the Flood Damage Prevention Ordinance by adopting the Harris County floodplain maps as revised on June 18, 2007.
- E. TX DOT Bridge Division Hydraulic Manual, the latest edition.
- F. National Weather Service Documents – TP-40 Rainfall Frequency Atlas of the United States.
- G. Harris County/City of Friendswood Memorandum of Understanding regarding maintenance of Harris County Hydraulic and Hydrologic models.

1.03 DEFINITIONS

- A. Acceptance Procedures – For projects in Galveston County, the Galveston County Consolidated Drainage District must accept and approve all detention ponds or other drainage facilities entering their system before the City of Friendswood accepts the infrastructure. The acceptance of the facility shall be placed on the next available Board agenda for approval and acceptance subject to the contractor's one (1) year maintenance period. For projects in Harris County, the Harris County Flood Control District will accept and approve all detention ponds as applicable.
- B. Conduit – any open or closed device for conveying storm water.
- C. Development – A change in land use that alters the impervious coverage of the tract of land. Impervious cover includes, but is not limited to, concrete, asphalt, stabilized soil, tennis courts, water features, pools, sidewalks, crushed concrete, limestone, and roofing.
- D. Drainage Area Map – Area map of a watershed which is subdivided to show each area served by each subsystem.
- E. Design requirements – The drainage criteria developed by the City of Friendswood, and complemented by those of the Galveston County Consolidated Drainage District and the Harris County Flood Control District, are intended to provide design guidelines for protection of all areas of the City from structural flooding resulting from a one hundred (100) year storm event. This is accomplished with the application of various drainage enhancements such as storm sewers, roadside ditches, open channels, detention, and sheet flow runoff. The combined system is intended to prevent structural flooding from extreme events up to a one hundred (100) year storm; all development must account for the one hundred (100) year storm event as further detailed in this Section.
- F. FEMA – Federal Emergency Management Agency
- G. Flood Control – The City of Friendswood is a participant in the National Flood Insurance Program. The intent of the flood insurance program is to make insurance available at a reasonable cost by providing for measures that may reduce the likelihood of structural flooding.
- H. GCCDD – Galveston County Consolidated Drainage District.
- I. HCFCD – Harris County Flood Control District.

- J. Hydraulic Grade Line – A line representing the pressure head available at any given point within the drainage system.
- K. In-Fill Development – Development of open tracts of land in areas where the storm drainage infrastructure is already in place and takes advantage of the existing infrastructure as a drainage outlet.
- L. Public storm sewers – Defined as sewers and appurtenances that provide drainage for public rights-of-way, more than one private tract, and are located in public rights-of-way or drainage easements.
- M. Private storm sewers – Defined as sewers and appurtenances that provide drainage for a private development, one or more than one private tract, and are located in private drainage easements.
- N. Rainfall frequency – Probability of a rainfall event defined by a percent chance of occurring in any given year. Information on rainfall frequency is published by the National Weather Service. For the purpose of storm drainage design, the following frequencies are applicable:
 - 1. Five (5) year frequency – a rainfall intensity having a twenty (20) percent probability of occurrence in any given year or nominally likely to occur once every five (5) years.
 - 2. Ten (10) year frequency – a rainfall intensity having a ten (10) percent probability of occurrence in any given year or nominally likely to occur once every ten (10) years.
 - 3. Twenty-five (25) year frequency – a rainfall intensity having a four (4) percent probability of occurrence in any given year or nominally likely to occur every twenty-five (25) years.
 - 4. One hundred (100) year frequency – a rainfall intensity having a one (1) percent probability of occurrence in any given year or nominally likely to occur every one hundred (100) years.
- O. Relationship to the Platting Process – Approval and review of storm drainage is a part of the review process for planning and platting of new developments. The review of storm drainage is overseen by the Community Development Department, Public Works Department, and the Galveston County Consolidated Drainage District.
- P. Sheet Flow – Overland storm water run-off that is not conveyed in a defined conduit.

- Q. Storm Sewer – Storm sewers and roadside ditch conduits are designed as a balance of capacity and economics. These conduits are designed to convey less intense, more frequent rainfalls with the intent of allowing for traffic movement on streets during these events.
- R. Street Drainage – When rainfall events exceed the capacity of storm sewer systems, the additional runoff is intended to be stored, detained, or conveyed overland in a manner that reduces the threat of flooding to structures. Street ponding of a short duration is anticipated and street drainage is designed accordingly to contribute to the overall capability of the drainage system.

1.04 DESIGN REQUIREMENTS

All designs of drainage facilities shall meet the requirements of the City of Friendswood Standard Details and Technical Specifications.

A. Determination of Runoff

Design Storm Events – All drainage improvements shall be designed for the following storm frequencies as established by the City of Friendswood, Galveston County Consolidated Drainage District, and Harris County Flood Control District.

<u>Type of Facility</u>	<u>Frequency</u>
Road Side Ditch	five (5) year
Storm Sewers	five (5) year
Channels/Storm Sewers/Culverts draining One hundred (100) acres or less	twenty-five (25) year
Creeks/Channels/Culverts draining One hundred (100) acres or more	one hundred (100) year

B. The Rational Method shall be used for determining the peak flow rate in the sizing of all drainage improvements.

1. Time of Concentration (in minutes) is the time required for peak runoff, from the entire upstream contributing area, to reach the point of interest. Time of concentration can be calculated based upon an analysis of the actual travel time from the most remote point in the drainage area. The travel path should be clearly denoted and a sketch included in the design calculations.

$$t_c = D/60V + 10 \text{ (minutes)}$$

D = flow distance (ft)
V = flow velocity (ft/sec)

For purposes of calculating t_c , the following velocities are recommended:

$V = 1$ ft/sec for overland flow

$V = 1.5$ ft/sec for flow across paved surfaces or along gutter flowlines.

$V = 2$ ft/sec for flow in a ditch or channel

$V = 3$ ft/sec for flow in a storm sewer

2. Rainfall Intensity (inches/hour) shall be calculated using the following formula:

$$I = \frac{b}{(d + t_c)^e}$$

b, d, and e values are derived from a single frequency rainfall intensity graph.

b = the y-intercept of the straight line

d = a constant used to adjust the relationship to plot as a straight line

e = the slope of the straight line

Values typically used in Friendswood are listed below:

$t_c \leq 60$ min			
Rainfall			
Frequency	b	d	e
3-year	90.6	19.5	0.803
5-year	92.9	19.7	0.788
10-year	107.9	23.6	0.781
25-year	98.5	24.0	0.729
50-year	107.0	21.1	0.734
100-year	90.8	16.5	0.685

$t_c > 60$ min			
Rainfall			
Frequency	b	d	e
3-year	71.0	8.4	0.774
5-year	70.1	7.7	0.752
10-year	96.6	17.2	0.770
25-year	89.2	10.4	0.736
50-year	86.5	10.0	0.709
100-year	84.0	11.0	0.679

3. The Rational Method is a method for calculating the peak flow rate for a storm drain system. The formula for determining the peak flow rate is:

$$Q = C_f CIA$$

Where:

Q = Flow rate (cubic feet per second (cfs))

C_f = Frequency factor, the product of C_f and C should not exceed 1.0

C = Runoff Coefficient

I = Rainfall intensity (inches/hour) for a given storm frequency
(Typically 5 year, 25 year, and 100 year).

A = Area (acres)

For the purposes of peak flow calculations, use the following “ C_f ”

C_f = 1.00, for storm frequencies of 10 years or less

C_f = 1.10, for storm frequencies of 25 years

C_f = 1.25, for storm frequencies of 100 years

For the purposes of peak flow calculations, use the following runoff coefficient “C,” which are in no way related to the lot coverage percentage as defined in the Zoning Ordinance.

Land Use Type	Run-off Coefficient
Raw Undeveloped Acres	0.20
Improved Undeveloped Acres (i.e., mowed, filled, re-graded, etc.)	0.30
Parkland	0.40
Residential:	
SFR-Estates	0.45
SFR	0.55
Multi-family:	
MFR-GHD	0.65
MFR-L	0.75
MFR-M	0.80
MFR-H	0.85
MHR	0.85
Commercial/Industrial:	
OPD/BP	0.90
DD/CSC/NC	0.95
LI/I	0.95
Pond (detention and amenity)	1.00

Alternatively, for estate-sized lots [greater than two (2.0) acres], the runoff coefficient “C” in the Rational Method formula can be calculated from the equation:

$$C = 0.6Ia + 0.2$$

Where:

C = watershed coefficient

Ia = impervious area/total area

If the alternate form is to be submitted, the calculation of the runoff coefficient “C” shall be provided as part of the drainage calculations.

C. Design of storm sewers

1. Design Frequency

a. Areas of New Development

The design storm event for sizing storm sewers for new development areas shall be a five (5) year storm. In any case where new development interferes with the natural sheet flow of the existing adjacent land, the storm system shall accommodate the runoff. Stubbed out streets next to undeveloped areas shall have storm sewer lines continuing to an approved outfall.

b. In-fill Development

1) An existing storm sewer and structures shall be evaluated using a five (5) year storm, assuming no development takes place. The storm sewer and structures shall then be evaluated with the development in place.

a) If the proposed development has a lower or equal impervious cover, no modifications to the existing storm sewer system are required.

b) If the hydraulic gradient of the existing storm drain is below the top of the curb, no improvements to the existing storm sewer system are required.

c. Private Drainage Systems

- 1) Storm sewers for private drainage systems shall conform to the City of Friendswood Technical Specifications and Standards Details for public drainage systems. Minimum diameter pipe for a private storm sewer system is ten (10) inches.
 - a) Unless otherwise approved by the City Engineer, all private drainage systems shall be constructed in conformance with the public storm sewer standards.
 - b) An approved permit shall be obtained from the City before any work shall be done on a private drainage system and shall include plan and profile sheets detailing the scope of the work, with elevations.
 - c) Open ditch areas may be converted into storm sewer lines with the approval of a Development Permit and Specifications for Residential Storm Sewer Installation Specification Form. Guidelines for the process are defined in Appendix F of this Design Criteria Manual.
 - d) Private storm sewer connections to public storm sewers shall occur at a manhole, or at the back of an inlet, as approved by the City Engineer.

2. Pipe Velocity and Slope Design

- a. All storm drains shall be designed by the application of Manning's Equation and the Continuity Equation.

Manning's Equation:

$$V = (1.486/n) R^{2/3} S^{1/2}$$

Where

V = velocity (ft/sec)

R = hydraulic radius (area in square feet/wetted perimeter in feet)

S = slope of energy line in feet/feet (same as conduit bottom slopes for uniform flow)

n = coefficient of roughness

- n = 0.013 for concrete pipes,
- n = 0.024 for CMP (Corrugated Metal Pipe)
- n = 0.011 for PVC (Polyvinyl Chloride)
- n = 0.010 for HDPE (High Density Polyethylene)

**Note: All public storm sewers in or on public rights-of-way and public drainage easements shall be constructed of RCP (Reinforced Concrete Pipe) unless otherwise approved by the City Engineer. Manning's roughness coefficients for CMP, PVC, and HDPE shall be used for storm sewers on private property only. CMP pipes shall be used for public storm sewers only upon specific approval of the City Engineer and/or the applicable drainage district entity (GCCDD or HCFCD).*

Continuity Equation:

$$Q = VA$$

Where

Q = discharge (cfs)

V = velocity (ft/sec)

A = wetted cross sectional area of conduit (A2)

- b. Design velocities shall be three (3) feet per second with the pipe flowing full.
- c. Maximum velocities shall not exceed seven (7) feet per second without the approval of the City Engineer.
- d. Minimum Public Storm Sewer Pipe Slopes:

Pipe Diameter	% Slope
18"*	0.26
24"	0.18
30"	0.14
36"	0.11
42"	0.08
48"	0.07
54"	0.06
60"	0.05
*Used for Inlet leads only.	

- e. For pipe sizes not listed above, the minimum slope shall be determined utilizing a design velocity of three (3) feet per second.

3. Pipe Sizes and Placement

- a. Public storm sewer lines and inlet leads shall be a minimum of twenty-four (24) inch inside diameter and eighteen (18) inch inside diameter, respectively, or equivalent. Box culverts shall be at least two (2) feet x two (2) feet inside dimension.
- b. Larger pipes located upstream shall not flow downstream into smaller pipes unless it is intended for detention requirements.
- c. Match crowns of pipe at any size change unless severe depth constraints prohibit such, or engineering calculations show flowlines should be matched.
- d. Locate public storm sewers in public street rights-of-way, in parallel and adjoining easements, or in other approved easements. Easements shall be at least twenty (20) feet wide, and the storm sewer shall be centered in the easement.

4. Starting Water Surface and Hydraulic Gradient

- a. The hydraulic gradient shall be calculated assuming the top of the outfall pipe as the starting water surface.
- b. At drops in pipe flowline, should the upstream pipe be higher than the hydraulic grade line, the hydraulic grade line shall be re-calculated assuming the starting water surface to be at the top of pipe at that point.
- c. For the design storm, the hydraulic gradient shall at all times be below the gutter line elevations at any point along the street.
- d. Hydraulic grade lines shall be shown on all profile drawings.

5. Manhole Locations

Manholes are required at the following locations:

- a. Size or cross section changes.
- b. Inlet lead and conduit intersections.
- c. Changes in pipe grade.

- d. Street intersections.
- e. A maximum spacing of six hundred (600) feet measured along the conduit run.
- f. Manholes shall not be placed or located in driveway or sidewalk areas.
- g. Adjust manhole frames and covers within the limits of the pavement to meet the proposed final top of slab.

6. Inlets

- a. Locate inlets at all low points in gutter.
- b. Valley gutters across intersections are not permitted.
- c. Inlet spacing is generally a function of gutter slope. For minimum gutter slopes of three-tenths (0.3) percent, the maximum spacing of inlets shall result from a maximum gutter run of three hundred (300) feet from a high point in the pavement to an inlet on a continuously graded street section, for a maximum spacing of six hundred (600) feet between inlets.
- d. If gutter slopes are less than three-tenths (0.3) percent, the City Engineer shall determine the inlet spacing. The acceptable minimum gutter grade is two-tenths (0.2) percent.
- e. Use only Standard Inlets:

Inlet	Application	Capacity
Type A	Parking Lots/Small Areas	2.5 cfs
Type B-B	Residential	5.0 cfs
Type D	Parking Lots	2.0 cfs
Type E	Roadside ditches	20.0 cfs
Type H-2	Residential / Commercial	5.0 cfs

- f. Do not use "Beehive" style grate inlets or other specialty inlets.
- g. Do not use grate top inlets in an unlined roadside ditch.

- h. Place inlets at the end of curb returns on side streets, when such streets intersect streets of a higher classification, unless special conditions warrant otherwise and are approved by the City Engineer.
- i. Storm sewer inlets shall be established in such numbers and in such locations as to effectively drain storm water from paved sections. A graphical plan and calculations of the hydraulic gradient shall be furnished by the design engineer.

D. Consideration of Overland Flow

1. Design Frequency – the design frequency for consideration of overland sheet flow shall consider extreme storm events which exceed the capacity of the underground storm sewer system resulting in ponding and overland sheet flow through the development to the primary drainage outlet.
2. Relationship of Structures to Street – all structures shall be constructed as per the Flood Damage Prevention Ordinance, and shall be higher than the highest level of ponding resulting from the extreme storm event as shown on the latest City adopted flood maps.
3. Calculation of Flow:
 - a. Streets will be designed so that consecutive high points in the street will provide for a gravity flow of drainage to the ultimate outlet.
 - b. The maximum depth of ponding at high points will be the top of curb of streets with curbs, or the elevation of the centerline of roads without curbs.
 - c. The maximum depth of ponding at low points will be nine (9) inches above the gutter elevation of curb of streets with curbs, or three (3) inches above the elevation of the centerline of streets without curbs.
 - d. Sheet flow between lots can be provided only through a defined drainage easement.
 - e. A map shall be provided to delineate the flow direction of the extreme event through a proposed development, and how this flow is discharged to the primary drainage outlet.
 - f. In areas where ponding occurs and no sheet flow path exists, a calculation shall be provided to show that runoff from the one

hundred (100) year event can be conveyed and remain in compliance with the other terms of this Section.

4. Overland flow shall enter outfall drainage facilities (channels or detention ponds) through a storm sewer with its last run sized to convey the one hundred (100) year event. Calculations shall be submitted for sizing the structure and determining that adequate inlet capacity exists.
5. Maintain pre-existing natural overland flow of storm water, and provide protection for adjacent properties from redirected storm water flows.
6. For development greater than five (5) acres, show contours of adjacent properties within two hundred (200) feet, and account for natural and existing overland flow or channelized flows.

E. Design of Open Channels

1. Design Frequency

- a. Open channels shall be designed according to methods described in the Galveston County Consolidated Drainage District (GCCDD) and Harris County Flood Control District (HCFCD) Criteria Manuals.
- b. Design standards for channel construction shall follow the requirements specified in the GCCDD & HCFCD Criteria Manuals.
- c. Design standards for the outfalls into channels shall conform to those in the GCCDD & HCFCD Criteria Manuals.

2. Determination of Water Surface Elevations:

- a. Water surface elevations shall be calculated using Manning's Equation and the Continuity equation.
- b. For the design storm event, the water surface for ditches and channels shall be calculated to remain within the banks and at or below the required freeboard.

3. Design of Culverts

Head losses in culverts shall conform to TxDOT Bridge Division Hydraulics Manual, Chapter 4 – Culverts.

F. Design of Roadside Ditches

1. Design Frequency

- a. Roadside ditches are permissible only for single family residential lots having widths larger than, or equal to, one hundred twenty (120) feet.
- b. Design storm event for a roadside ditch shall provide one-half (0.5) foot of freeboard below the edge of pavement, or the natural ground at the rights-of-way line, whichever is lower.
- c. The design must include an extreme event analysis to indicate that adjoining structures will not be flooded.

2. Velocity Considerations

- a. For grass lined sections, the design velocity shall be two (2.0) feet per second during the design storm event. The maximum velocity shall be five (5) feet per second.
- b. A grass lined or unimproved roadside ditch shall have side slopes no steeper than three (3) horizontal to one (1) vertical.
- c. Minimum grades for roadside ditches shall be two-tenths (0.2) percent.
- d. Calculation of velocity shall use a Manning's roughness coefficient of four hundredths (0.04) for earthen sections, and twenty-five-hundredths (0.025) for ditches with paved inverts.
- e. Use erosion control methods acceptable to the City when design velocities are calculated to be greater than three (3) feet per second and are approved by the City Engineer.

3. Culverts

- a. Culverts shall be placed at all driveway and roadway crossings and other locations where appropriate.
- b. Culverts shall be designed assuming inlet control.
- c. Roadside culverts shall be sized based on drainage area. Calculations shall provide for each block based on drainage design criteria presented in this manual.
- d. Cross open channels with roadside culverts no smaller than eighteen (18) inch diameter or equivalent. The size of culvert used shall not create a head loss of more than two-tenths (0.2) feet greater than the normal water surface profile without the culvert.
- e. Use erosion control methods acceptable to the City when design velocities are calculated to be greater than three (3) feet per second and approved by the City Engineer.
- f. Sloped End Treatments (S.E.T.'s) are required on all TxDOT Highways.

4. Depth and Size Limitations for Open Ditches

- a. Residential streets – the maximum depth shall not exceed two and one-half (2.5) feet below the edge of pavement.
- b. Roadside ditch bottoms shall be at least two (2) feet wide.
- c. Ditches in adjoining and parallel easements shall have the top of bank not less than two (2) feet from the outside easement line or edge of pavement when applicable.
- d. Roadside ditch side slopes shall not exceed three (3) horizontal to one (1) vertical.
- e. The design storm event for a roadside ditch shall provide one-half (0.5) foot of freeboard below the edge of pavement, or the natural ground at the rights-of-way line, whichever is lower.

G. Design of Outfalls.

1. Outfall design shall conform to GCCDD and HCFCD standards as applicable.
2. Detention pond and storm sewer outfalls shall be placed one foot above the flowline of the receiving channels, creeks, and detention pond, or two foot above normal water elevation, whichever is greater.
3. Flowlines of storm sewer outfalls shall be located six (6) inches above the flowline of a receiving roadside ditch.

H. Storm Water Detention

1. Application of Detention.
 - a. As a normal consideration, storm water detention shall be required. The use of on-site detention is required in order to mitigate potential damage to existing structures unless: the current infrastructure has been improved and provides mitigation for the development, the City has developed a plan for a detention facility to serve the overall area, the development is within an existing subdivision served by a detention facility that is within the platted boundaries of said subdivision and that has been previously accepted and approved by the City and the GCCDD, or a development qualifies for the purchase of regional detention under certain circumstances enumerated in 1.04.H.8.
 - b. Design calculations for sizing the detention basin and related structures shall be performed by the applicable method described in the following sections.
 - c. All calculations shall be sealed and signed by a Professional Engineer licensed to practice engineering in the State of Texas.
 - d. All commercial and non-residential new developments, additions, or redevelopments will require a new or revised drainage plan for additional impervious cover. The standard minimum rate of detention referenced in paragraph 2 below will apply to this impervious cover.

- e. A parking lot with a curb may be used as part of the detention system, provided that the maximum depth of water over the inlet throat flow line does not exceed nine (9) inches, and the maximum depth in any parking stall does not exceed six (6) inches.
2. Calculation of Detention volume using the Hydrologic Method for Projects of one hundred (100) acres or less.
- a. Minimum Rate of Detention for Projects of one hundred (100) acres or less.

When using any of the methods detailed below for calculating the required amount of detention, the minimum amount of detention provided shall never be less than the following standard minimum rates as follows:

For the purpose of determining the standard minimum rate, all the acreage used in the calculation must include proposed or existing development. Raw/undeveloped acreage may not be included in the calculation to lower the standard minimum rate.

- 1) Commercial Projects – Defined as projects with ninety (90) percent or more impervious cover or a runoff coefficient of nine-tenths (0.9) or larger – Standard minimum rate of six-tenths (0.6) ac.ft. per acre.
- 2) Multi-Family Projects – Defined as projects with eighty (80) percent or more impervious cover or a runoff coefficient of eight-tenths (0.8) or larger – Standard minimum detention rate fifty-five-hundredths (0.55) ac.ft. per acre.
- 3) Residential Projects – Defined as projects with forty (40) percent or more impervious cover or runoff coefficient of fifty-five-hundredths (0.55) or larger – Standard minimum detention rate of five-tenths (0.5) ac.ft. per acre.
- 4) Estate Lot Projects – Defined as projects with less than forty (40) percent impervious cover or a runoff coefficient less than fifty-five-hundredths (0.55) – No Standard minimum detention rate shall apply.

- 5) Mixed Use Projects – The Standard minimum rate of detention shall be determined based upon weighted average of the minimum rates set forth above.

b. Modified Rational Method.

The modified rational method may be used to determine detention storage for all projects less than five (5) acres.

c. Simplified Method

For projects less than five (5) acres, the standard minimum rate may be used in lieu of performing a more complex analysis. This coefficient multiplied by the total acreage will yield the total detention volume required.

d. Optional Detention Storage Methodology for Projects of one hundred (100) acres or less.

The maximum allowable release rate from the detention facility during the one hundred (100) year storm event is the one hundred (100) year peak flow rate from the area under pre-development conditions. The undeveloped peak flow rate shall be determined using the rational method.

The following method will be acceptable for determining storage volume if the simplified method is not utilized.

3. The Triangular Hydrograph Method may be used; or

4. The Unit Hydrograph Method may be used.

For developments with more than one hundred (100) acres, a detailed hydrologic analysis utilizing the HEC-1 or HEC-HMS Flood Hydrograph method shall be required per the applicable governing entities.

5. Calculation of Outlet Size:

Outfalls which utilize a pipe restrictor to control outflow shall use the orifice equation.

a. Reducer or Restrictor Pipes shall be sized as follows:

- 1) Use the following equations to calculate the required outflow orifice:

$$\text{Area of pipe} = \pi d^2/4$$

$$Q = CA (2 gh)^{1/2}$$

$$D = Q^{1/2} / 2.25 h^{-1/4}$$

Where

Q = outflow discharge in cfs.

C = 0.8

h = water surface differential (ft)

D = orifice diameter (ft)

A = area of pipe (ft²)

g = gravity (32.2 ft/s²)

New flow into receiving storm sewer cannot exceed undeveloped flow.

- 2) For head differential in systems outfalling into a roadside ditch or storm sewer, the actual head loss or 1 foot, whichever is greater, shall be used. For all other discharge conditions, use 2 feet, or the difference between one hundred (100) year water surface elevation and the elevation of the twenty-five (25) year storm in the receiving channel, whichever is greater.
- 3) For detention systems outfalling into a public storm sewer, the restrictor shall be sized based upon the peak five (5) year developed flow.
- 4) For detention systems outfalling into a public roadside ditch, the restrictor shall be sized based upon the peak five (5) year undeveloped flow.
- 5) For detention systems outfalling into creeks, channels, or storm sewers sized to carry the twenty-five (25) year or one hundred (100) year storm, the restrictor shall be metered to release the five (5) year, twenty-five (25) year, and one hundred (100) year undeveloped flows.
- 6) Restrictor shall be either the required diameter or the equivalent cross-sectional area. The orifice diameter "D" shall be a minimum of six (6) inches.

- 7) Detention ponds less than 1 acre in size shall have a minimum of 4 inches of freeboard. All ponds one (1) acre or larger in size shall have at least one (1) foot of freeboard. Freeboard shall be measured from the maximum one hundred (100) year water surface elevation and shall not be used in the calculation of storage or mitigation.

6. Detention Pond Structural Requirements:

- a. Side slopes shall not exceed a slope of four (4) horizontal to one (1) vertical.
- b. Maintenance berms will be required in accordance with the Galveston County Consolidated Drainage District Design Criteria Manual.
- c. Ponds with lengths over fifty (50) feet shall have a concrete pilot channel.
- d. Concrete pilot channels shall have a minimum width of four (4) feet and a minimum thickness of four (4) inches with #3 rebar spaced at twelve (12) inches on center each way. The concrete pilot channels shall be constructed of 5-sack cement concrete with a compressive strength of three thousand (3,000) psi at twenty-eight (28) days. Provide a one (1) inch depression per every one (1) foot of transverse slope, with redwood headers spaced every forty (40) feet.
- e. Single-user ponds may use a GCCDD-approved alternative for concrete pilot channels.
- f. Appropriate covering (grass, slope paving, etc.) shall be established on side slopes and pond bottom, to prevent erosion during periods of maximum water velocity
- g. A concrete gravity spillway, set at the maximum ponding elevation, shall be provided at the detention pond outfall structure.
- h. Wet detention ponds, and ponds with vertical walls, shall provide access for safety and maintenance purposes. Wet detention systems shall have a method in place to minimize stagnation, such as an aeration system.
- i. "Dry" detention ponds shall not be designed with less than two (2) feet of depth.

7. Ownership and Easements:

a. Private Facilities:

- 1) Pumped systems shall not be allowed. Only detention facilities which rely on gravity to discharge storm runoff will be allowed by the City and the GCCDD.
- 2) Responsibility for maintenance of the detention facility must be indicated on the plat.
- 3) All private properties being served shall have drainage access to the pond.
- 4) A private maintenance agreement must be provided when multiple tracts are being served.

b. Public Facilities:

- 1) Facilities will only be accepted for maintenance by the City when such is in the public interest.
- 2) The City will require a maintenance work area twenty (20) feet wide surrounding the extent of the detention area. Public rights-of-way or permanent access easements may be included as a portion of this twenty (20) foot width.
- 3) A dedication of easements or reserves must be provided by the plat.
- 4) Proper dedication of public access to the detention pond must be shown on the plat or by separate instrument. This includes permanent access easements with overlapping public utility easements.

8. Off-Site Detention in the Galveston County Consolidated Drainage District:

- a. It is the desire of the City of Friendswood that regional detention be utilized when available. If new development is within the service area of a publicly owned or operated regional storm water detention

facility, connection to such regional facility shall be as required by the drainage master plan applicable to such facility.

- b. In Galveston County, offsite detention, such as regional or sub-regional detention, may be purchased from the Galveston County Consolidated Drainage District provided:
- 1) The development drains to the Clear Creek watershed or the tributaries of Clear Creek.
 - 2) All lots or tracts must outfall into a conveyance system with adequate capacity, excluding single family residential construction on lots or tracts containing five (5) acres or less.
 - 3) The proposed improvements do not include the subdivision of land.
 - 4) The developed site does not exceed eight (8) acres for single-family residential lots or tracts, five (5) acres for multi-family residential lots or tracts, and five (5) acres for commercial lots or tracts.
 - 5) Regional detention for site development relating to single-family residential construction on lots or tracts containing five (5) acres or less may be purchased based on square feet of impervious cover by completing the Attachment #4, a copy of which is made a part of this manual. All other site development qualifying for the purchase of regional detention must submit a new or revised drainage plan.

9. Detention Requirements Summary:

Lot or Tract Type	Acreage	Off-Site Detention Available	Engineered Drainage Plans	Detention Volume Calculation Method	Rates	Attachment #4* Required	GCCDD Board Approval
SFR	0-5	Yes	Not Required	Purchase Regional Detention Based On: New Impervious Coverage in SF x \$0.25/SF Calculation of Detention Volume Unnecessary	\$0.25 per SF	Yes	Not Required
	5-8	Yes	Required	Engineer Determines the Detention Volume by an Approved Method	\$25,000 per AC-FT	No	Required
	8+	No	Required	Engineer On-Site Detention	NA	No	Required
MFR	0-5	Yes	Required	Engineer Determines the Detention Volume by an Approved Method	\$25,000 per AC-FT	No	Required
	5+	No	Required	Engineer On-Site Detention	NA	No	Required
COM	0-5	Yes	Required	Engineer Determines the Detention Volume by an Approved Method	\$25,000 per AC-FT	No	Required
	5+	No	Required	Engineer On-Site Detention	NA	No	Required

10. Conveyance:

- a. The developer shall provide conveyance to a detention facility without having a detrimental effect on any adjacent properties.
- b. If conveyance is directed through properties not directly owned by the developer, an executed contract or recorded deed between the parties agreeing to the said conveyance must be presented to the City and the appropriate drainage district entity.
- c. This procedure is approved by both the City and the corresponding drainage district entity (GCCDD or HCFD) during preliminary plan review.

1.05 RESERVED

1.06 SUBMITTALS

A. Preliminary Submittals- Submit for Review and Comment:

1. One line drawings are required as part of the platting process. One line drawings shall include:
 - a. Approximate definition of lots and street patterns.
 - b. The approximate drainage areas for each system.
 - c. A definition of the proposed drainage system by single line.
 - d. The proposed pipe diameters.
 - e. Any proposed drainage easements.
 - f. Floodplain and floodway boundaries, if any.

B. Final Design – Submit the following for approval:

1. Copies of any documents which show approval of exceptions to the City Design Criteria.
2. Design calculations for storm line sizes and grades, and for detention facilities, if any.

3. Design calculations for the hydraulic grade line of each line or ditch, and for detention facilities, if any.
 4. Contour map and drainage area map of the project.
 5. Plan and profile sheets showing storm sewer or open ditch design (public facilities only).
 6. Projects located within a floodplain boundary or within a floodplain management area shall:
 - a. Show the floodplain boundary or floodplain area, as appropriate, on the one-line drawing or drainage area map.
 7. Soil boring logs.
 8. All drainage plans shall have a current FEMA flood zone determination statement.
- C. Signature State – Submit the Following for Approval:
1. Review prints.
 2. Original drawings.
 3. Storm water detention maintenance agreement letters.

1.07 QUALITY ASSURANCE

Prepare calculations and construction drawings under the supervision of a Professional Engineer licensed to practice engineering in the State of Texas and trained in the disciplines required by the drawings. The final construction drawings and all design calculations shall be sealed, signed, and dated by the Professional Engineer licensed to practice engineering in the State of Texas responsible for the development of the drawings along with their firm's registration information.

2.0 EXECUTION

2.01 RESEARCH REQUIREMENTS – Reserved

2.02 DESIGN ANALYSIS

- A. All projects shall be tied to National Geodetic Survey (NGS) Datum adjustment which matches the Federal Emergency Management Agency (FEMA) rate maps or the most current NGVD which matches the FEMA rate maps. In the event GPS surveying is used to establish benchmarks, at least two (2) references to benchmarks relating to the FEMA rate maps must be identified. Equations may be used to translate other datum adjustments to the required adjustment.
- B. Plan sets shall include a drainage area map which shall contain all storm sewer drainage calculations.
- C. All drainage systems for curb-and-gutter pavements shall be underground closed conduits; individual residential lot drainage is exempt. Drainage systems for pavements without curb-and-gutter shall be roadside open ditch sections.
- D. Soil boring with logs shall be made along the alignment of all storm sewers having a cross section equal to or greater than seventy-two (72) inches in diameter or equivalent cross section area. Boring should be taken at intervals not to exceed five hundred (500) linear feet, and to a depth not less than three (3) feet below the flow line of the sewer. The required bedding will be determined from the soil boring.
- E. Plan sets shall include the five (5) year Hydraulic Grade Line for storm sewers and roadside ditches on the plan and profile sheets.

SECTION VI

SITE DEVELOPMENT

1.0 GENERAL

- A. Should any portion of this Section conflict with the Subdivision Ordinance or the Zoning Ordinance, the more stringent of the latter two (2) shall govern.
- B. The City Engineer shall have the final interpretation of any provisions in this Design Criteria Manual.
- C. The City Engineer has the right to issue administrative orders or design criteria modifications for just cause related to any provisions or conditions in this Design Criteria Manual.

1.01 CHAPTER INCLUDES

Criteria for the design of site development plans.

1.02 REFERENCES

- A. City of Friendswood Zoning Ordinance.
- B. City of Friendswood Subdivision Ordinance.
- C. City of Friendswood Standard Details and Technical Specifications, latest version. These details can be downloaded from:

www.friendswood.com/publications

- D. Texas Department of Transportation – Traffic Control Plan

1.03 DEFINITIONS

Commission – Planning and Zoning Commission.

1.04 DESIGN REQUIREMENTS

- A. Site Development Requirements:
 - 1. General Requirements:

- a. Site development plans for all site developments shall be approved by the City Engineer prior to construction.
- b. Site developments, not including single family residential, shall include any project that affects public water, wastewater, storm drainage, sidewalks, or paving facilities.
- c. All sidewalks in new developments shall be a minimum of five (5) feet from the back of curb, two (2) feet from the edge of the public rights-of-way and shall not be in any utility easements.
- d. All site developments shall conform to the requirements of these Standards, the latest version of the International Code Series, as amended, and all applicable rules and regulations of the City of Friendswood.
- e. All wastewater, drainage, and paving site development improvements, up to and including the connection to the public system, shall be privately owned, operated, and maintained. All water site development improvements up to but not including the meter and meter vault, shall be privately owned, operated, and maintained.
- f. Restore the City of Friendswood rights-of-way or easements to existing or better condition than that prior to start of work.
- g. Private utilities and service lines shall be placed in an easement on the property being served.
- h. Streets that change direction a minimum of ninety (90) degrees will require a different name.

2. Design Review Requirements for Site Development Plans

- a. All site development plans for proposed developments shall be submitted to the Community Development Department for approval prior to construction. Site development plans shall show all proposed water, wastewater, paving, parking, drainage, street signage, streetlight locations, flood protection facilities, and sidewalks with approved ADA ramps locations, and a traffic control plan.

- b. A traffic impact study shall be required for any development proposal expected to generate traffic volumes that will significantly impact the capacity and/or safety of the street system. All proposed developments generating volumes of five thousand (5,000) trips per day or greater shall abide by this criterion. The trip estimate shall be based on the latest version of the Institute of Transportation Engineers' Trip Generation Manual.
- c. The developer should first schedule a Development Review Committee (DRC) meeting with Community Development Department staff. At this meeting, infrastructure issues and the feasibility of developing the site will be discussed.
- d. The developer shall prepare a site plan for submittal to be reviewed by staff. The developer shall consult with staff until all significant issues surrounding the proposed site plan and development are resolved, prior to proceeding to the Planning and Zoning Commission.
 - 1) The submittal for the site plan requires five (5) copies of the following:
 - a) Cover Sheet
 - b) Site Plan
 - c) Landscaping Plan
 - d) Building Elevation Plan
 - e) Photometric Plan
 - 2) and two (2) copies of:
 - a) Drainage Plan
 - b) Utility Plan
 - c) Grading Plan
 - d) Storm Water Pollution Prevention Plan

- e. The final site plan will be presented to the Planning and Zoning Commission by City Staff for consideration. The Planning and Zoning Commission reviews the final document for completeness and public awareness.
 - f. The final site plan submittal to be provided to Community Development Department staff at least ten (10) days prior to the next regularly scheduled Planning and Zoning Commission meeting.
 - g. Once the site plan is approved, the developer may begin the building permitting process. Approval from the appropriate drainage entity is required prior to the issuance of building permits.
 - h. Three (3) copies of the site development plans shall be submitted to the Building Official for review. The City will typically respond within two (2) to four (4) weeks of the initial submittal.
 - i. When plan changes are requested, two (2) copies of the revised site development plans shall be submitted to the City for review, which will ultimately result in the reissuance of any applicable permit(s).
- 3. Building Slab Elevations – Minimum building slab elevations shall conform to the requirements of the City of Friendswood Flood Damage Prevention Ordinance and latest adopted flood zone maps.
 - 4. Water Service – Water service lines and meters shall be sized in accordance with requirements set out in the Waterline Distribution System Design Requirements.
 - 5. Sanitary Sewer Service – Sanitary sewer service leads are normally installed during construction of the public sanitary sewer. When a sanitary sewer service lead is to be installed for a site development, refer to the Wastewater Collection System Design Requirements. All lots, tracts, or reserves shall be connected directly to a public sanitary sewer by a single lead, except as specifically approved by the City Engineer. The City Department of Public Works shall be contacted for all sanitary sewer connections for commercial projects.
 - 6. Site Drainage Requirements – All commercial, industrial, office, recreational, and multi-family tracts shall have an internal drainage system. The internal drainage system shall collect all site runoff and direct it into a private storm sewer system that shall connect to the public

drainage facilities in the area. Any exceptions require specific approval from the City.

- a. The internal site storm sewer shall be connected to a public storm sewer at a manhole or at an inlet adjoining the site. The site drainage outfall shall be connected to the nearest existing drainage system with adequate capacity to serve the drainage area. Where extension of the existing drainage system is required, all costs for extension shall be the responsibility of the developer.
- b. All internal facilities shall be designed by a Professional Engineer licensed to practice engineering in the State of Texas, and shall be sized to drain the site in accordance with these standards.
- c. Drainage calculations shall be submitted with all site development plans. Additional supporting data may be required by the City.
- d. When the site drains directly into a Galveston County or Harris County facility, and/or into a TxDOT or county rights-of-way, the appropriate governmental entity(s) shall approve the site development connection to the public facilities.

7. Driveways

- a. It is desirable to minimize the number of non-residential driveways on all streets in order to reduce the number of conflict points and facilitate traffic flow. It is recognized, however, that certain existing tracts may not be able to fully comply with the following standards due to limited frontage or other constraints.
- b. When compliance with these criteria is precluded for any reasons, attempts should be made to obtain alternative access where feasible, including joint access driveways, access easements to adjoining properties, or access to intersecting streets.
- c. If it can be demonstrated to the City Engineer that sufficient attempts to secure alternative access have been made, and that such access is still not possible, the City Engineer may accept a Traffic Impact Analysis performed by a Professional Engineer licensed to practice engineering in the State of Texas. If approved, the analysis will be used to allow a deviation to the driveway spacing requirements indicated herein.

- d. Residential driveways shall be a minimum of twelve (12) feet wide and a maximum of twenty-five (25) feet wide at the rights-of-way line, unless otherwise approved by the City Engineer, and should be placed at least twenty-five (25) feet away from the property line at the intersection of two (2) streets and at least five (5) feet from a property line between two (2) properties.
- e. Residential lots must have a minimum of one hundred (100) feet of frontage in order to be eligible for a circular driveway on the lot, and the two (2) driveways shall have at least forty-five (45) feet of separation between them from the inside edges of driveways.
- f. Non-residential driveways shall be a minimum of twenty-five (25) feet wide and a maximum of thirty-five (35) feet wide. Non-residential driveways shall be spaced with a minimum of fifty (50) foot separation.
- g. Non-residential driveways on major thoroughfares/boulevard streets shall be placed no closer than one hundred (125) feet from the ultimate curb line of the intersecting major thoroughfare or boulevard street. Non-residential driveways on collector/ minor streets are to be placed no closer than seventy-five (75) feet from the ultimate curb line of the intersecting major thoroughfare/boulevard street. Non-residential driveways on major thoroughfares/boulevard streets are to be placed no closer than seventy-five (75) feet from the ultimate curb line of the intersecting collector commercial/minor street.
- h. For purposes of determining the separation distance, the back of curb or edge of street shall be used in conjunction with the edge of driveway which is closest and parallel to the street from which the measurement is to be taken.
- i. Non-residential tracts with less than one hundred fifty (150) feet of frontage on a public street shall have no more than one (1) driveway. Non-residential tracts between one hundred (150) feet and three hundred twenty (320) feet of frontage on a public street shall have no more than two (2) driveways. Non-residential tracts between three hundred twenty-one (321) feet and six hundred (600) feet of frontage on a public street shall have no more than three (3) driveways. Non-residential tracts with over six hundred (600) feet of frontage on a public street shall have the number of

driveways specially designated and specifically approved by the City.

- j. Non-residential driveway connections to the public street shall be approved and inspected by the City, TxDOT, county representative, or appropriate entity.
- k. Driveway radii shall not extend beyond the projection of a property line perpendicular to the back of the curb.
- l. Driveways shall be installed according to the latest version of the City of Friendswood Standard Details and Technical Specifications.
- m. Driveways shall be evaluated with respect to location of existing or proposed signage, landscaping, and structures for adequate sight distance.
- n. A note stating, "Access to adjacent property and common driveways may be required" shall be placed on the site plan.
- o. Curb returns for driveways shall be, at a minimum:
 - 1) For residential driveways:
 - a) Five (5) feet on local streets less than twenty-eight (28) feet in width.
 - b) Ten (10) feet on collector streets, major thoroughfares and boulevards, and local streets greater than twenty-eight (28) feet in width.
 - 2) For non-residential driveways:
 - a) Twenty-five (25) feet on local streets less than twenty-eight (28) feet in width
 - b) Thirty-five (35) feet on collector streets, major thoroughfares, boulevards, and local streets greater than twenty-eight (28) feet in width

8. Fire Lanes

- a. Fire lanes shall be required on all multi-family and non-residential tracts if any part of a building is greater than one hundred fifty (150) feet from either a fire lane, private street, or public street rights-of-way.
- b. Fire lanes shall be either twenty (20) feet wide with a twenty-five (25) foot radius or twenty-five (25) feet wide with a twenty (20) foot radius.
- c. Fire lanes shall be constructed using the same pavement structural requirements as a public pavement. Alternate materials may be used with specific approval from the City Engineer.
- d. Fire lanes shall be designed to drain in compliance with the Site Development Requirement.
- e. Fire lane markings shall be provided as specified in the Friendswood Code of Ordinances.
- f. An emergency vehicle turn-around, whether a cul-de-sac of a radius required by the Fire Marshal or a T-head at least one hundred twenty (120) feet in length, shall be required under certain conditions.

9. Controlled Access Gate Requirements

- a. Plans for access control systems shall be submitted to the Fire Marshal's Office and approved prior to construction.
- b. All access control gates shall have emergency means of operation in the event of power loss.
- c. Access control gates shall provide a clear, passable width of at least twenty (20) feet.
- d. A Knox® key switch shall be provided for all controlled access gates. The key switch shall operate all gates.
- e. A Knox® pad lock shall be provided for all non-motorized gates.

- f. The location of the key switch shall be approved by the Fire Marshal's Office.
- g. The owner or homeowners' association shall maintain all parts of the access system and keep them in good working order.
- h. The Fire Marshal's Office and Police Dispatch shall be notified immediately of any damage to the access system that hinders access including but not limited to, damage to the key box, lock, and gates.
- i. Access gates shall be far enough back to provide at least forty (40) feet of stacking space.

10. Storm Water Pollution Prevention Plan

- a. A storm water pollution prevention plan shall be provided for all site development projects.
- b. Filter fabric fence shall be installed at the perimeter of the site before construction begins.
- c. Once construction is complete, the filter fabric fence may be removed; provided a minimum of five (5) feet of hydro-mulch or sod shall be installed at the back of all curbs, or other Best Management Practices, shall be implemented and/or installed.
- d. Refer to the Storm Water Ordinance for additional requirements.

11. Parking Lot Guidelines

A parking lot layout is required to ensure that adequate off-street parking is provided with the construction, alteration, or remodeling of any building.

- a. Concrete pavement thickness shall be a minimum of five (5) inches with eight (8) inches of stabilized subgrade. Reinforcement shall be Grade 60, $f_y = 60,000$ psi, #4 deformed reinforcing bars spaced at sixteen (16) inches center to center both ways and minimum lap lengths of eighteen (18) inches.
- b. Hot Mix Asphalt Concrete pavement thickness shall be a minimum of two (2) inches with eight (8) inches of stabilized crushed

concrete or limestone and six (6) inches of lime-stabilized subgrade.

- c. Off-street parking spaces shall be located on the same lot, tract, parcel, or premises as the use being served, or on other property of the same or less restrictive zoning classification that the owner of the premises being served has a continuing right to use for parking. When the off-street parking spaces are not located on the same lot, tract, parcel, or premises being served, the distance from the center of the parking lot to an entrance to the building, shall not exceed five hundred (500) feet in distance measured along the shortest available pedestrian route with public access.
- d. Any existing building that is enlarged, structurally altered, or remodeled by more than fifty (50) percent as it existed shall be accompanied by off-street parking for the entire building. When the enlargement, structural alteration, or remodel is not increased or changed by more than fifty (50) percent, additional off-street parking shall only be required for the increased or changed floor area.
- e. Existing parking spaces may not be used to satisfy additional off-street parking requirements unless, the existing spaces exceed the number recommended for the building or use for which the existing spaces are associated.
- f. The number of off-street parking spaces required for each building or use shall be determined by reference to the Parking Group Table in Appendix C – Design Criteria Manual. Where several different property uses will share a joint parking area, the parking should be computed based upon the overall development.
- g. The design and dimensions of off-street parking areas shall be in accordance with the following table of minimum dimensions. Minimum stall width shall be nine feet, except for residential and all-day office parking which may utilize stalls eight and one-half (8.5) feet in width, provided that minimum aisle widths are increased by one (1) foot. In addition, the dimensions of up to twenty (20) percent of the total number of off-street parking spaces may be reduced to eight (8) feet in width and sixteen (16) feet in depth to accommodate compact automobiles (such spaces must be so marked). All dimensions below are in feet:

	<i>Angle (degrees)</i>				
	<i>0°</i>	<i>35°</i>	<i>45°</i>	<i>60°</i>	<i>90°</i>
Stall, parallel to aisle	23.0	18.0	12.7	10.4	9.0
Stall, perpendicular to aisle	9.0	16.5	19.0	20.0	18.0
Aisle width, one-way	12.0	12.0	12.0	16.0	24.0
Aisle width, one-way	22.0	22.0	22.0	24.0	24.0
Cross aisle, one-way	11.0	11.0	11.0	11.0	11.0
Cross aisle, two-way	22.0	22.0	22.0	22.0	22.0
Refer to Appendix B – Figure 8 of this Design Criteria Manual for Off-street Parking Diagrams					

- h. Off-street parking spaces shall be clearly marked. Parking spaces abutting an adjoining property line or street rights-of-way shall be provided with wheel guards or bumper guards located such that no part of a normally parked vehicle will extend beyond the property line. When wheel guards are used, they shall be centered two and one-half (2.5) feet from the property line for ninety (90) degree parking, two and one-third (2.3) feet for sixty (60) degree parking, and two (2.0) feet for forty-five (45) degree and thirty (30) degree parking.
- i. The parking layout and design of all off-street parking areas shall be approved by the City Engineer. The City Engineer shall determine that spaces provided are usable, and that the circulation pattern within the area is adequate.
- j. One ADA – compatible space is required for every twenty-five (25) regular spaces (full sized or compact sized), or for any increment thereof.

12. Pipelines

All new Pipelines shall be a minimum depth of ten (10) foot in depth to the top of the pipe in all new or existing road rights-of-way.

13. Utility and Cable Installation

- a. Utility infrastructure shall be mounted on pads at ground level; if within the rights-of-way, utility infrastructure shall not block sidewalks or visibility at intersections.

- b. For future individual utility service, lines which originate in a public road right-of-way and extended to any building or structure shall be installed underground.
- c. On side streets with above-ground utility services which intersect a roadway with underground utility lines, the first pole supporting the above ground service shall be placed on such a side street at least one hundred (100) feet from the center of the roadway with the underground utilities.

2.0 EXECUTION

2.01 RESEARCH REQUIREMENTS

- A. Discuss project concepts outlining proposed features and usage with the City.
- B. Research existing utility and rights-of-way information.
- C. Verify that no restrictions exist that could result in denial of the project concept.

2.02 DESIGN ANALYSIS – Reserved

2.03 DRAWINGS

- A. The site development plan shall include layout sheet(s) providing a photometric layout of the site complete with location of proposed lights, information on light heights, and type of light standard proposed.
- B. The site development plan shall include an overall drainage layout showing:
 - 1. Total area (in acres) of site to be drained.
 - 2. Area (in acres) drained to each inlet.
 - 3. Contours or an adequate number of spot elevations to indicate area drained to each inlet.
 - 4. Top elevation and flowline elevation at each inlet.
 - 5. Gradient and size on each private storm sewer.
 - 6. Computations to support pipe sizes and grades shown [minimum private storm size shall be ten (10) inches].

7. Design velocity for storm sewers shall be three (3) feet per second.
 8. A TxDOT or a county permit shall be required for drainage affecting a state or county owned/maintained facility. Submit permit with site plan.
 9. The drawings shall be prepared and sealed by a Professional Engineer licensed to practice engineering in the State of Texas.
 10. The size and location of any required detention facility shall be indicated on the plans, along with the size and location of the outfall structure.
- C. All site development plans shall be approved by the appropriate drainage entity prior to City approval being granted.
 - D. The site plan shall show all water and sewer service lines with sizes, grades and alignments; and illustrate any proposed ties into the existing public lines.
 - E. The site development plan shall show all parking areas.
 - F. The site development plan shall indicate the types and location of all existing and proposed landscaping. Landscaping shall meet the minimum requirements as set forth in the Zoning Ordinance. If no trees exist, a note to that effect shall be placed on the site development plan. The Qualified Tree List can be found in Appendix D of this Design Criteria manual.
 - G. The site development plan shall show the location, height, and area of all proposed buildings. All setback lines as required by the Zoning Ordinance shall also be shown with a dimension called out on the site plan between the building and the site boundary.
 - H. The land use for all adjacent property shall be shown on the site development plan.
 - I. All parking lot pavements for site development plans shall be engineered to provide for operation by vehicles normally expected to utilize the parking area, and the thickness of paving shall be based upon the soil conditions underlying the parking area. A Professional Engineer licensed to practice engineering in the State of Texas shall certify the design submitted for approval.
 - J. Concrete sidewalks [a minimum of four (4) feet wide and four (4) inches thick with steel reinforcement] shall be required along all street frontages. The design and installation of such sidewalks shall comply with Texas Accessibility

Standards Architectural Barriers requirements and the City of Friendswood Standard Details and Technical Specifications. The location of all proposed and existing sidewalks shall be shown on the site development plan.

- K. Show location of signs, screening walls or fences [indicate height, material, and appurtenances], and dumpsters (with appropriate screening).
- L. If the site is located within the Community Overlay District, a plan note shall be made on the site development plan indicating such; and that the site development will conform to the Zoning Ordinance requirements.
- M. No improvements in or to public rights-of-way shall be made without prior approval from the City Engineer. This includes planting trees in public rights-of-way, within residential and non-residential areas, or in any utility or drainage easement. Only Class 2 and Class 3 trees listed in Appendix D of this Design Criteria Manual may be planted in public rights-of way if such planting is approved by the City Engineer. No trees of any class may be planted in utility or drainage easements.

APPENDIX A

Attachments

ATTACHMENTS

1. Lift Station Start-up Log
2. Design Criteria Modification Form
3. GCCDD Form DR-001

DRAFT

City of Friendswood Lift Station Start-Up Log								
Date:			Site:			Pump Number:		
Address:			Pump Designation:					
Name Plate Data								
Pump Data								
Pump Make:			Size:					
Pump Model:			TDH:					
Serial Number:			Impeller Number or Size					
			Flow in GPM:					
Pump Motor Data								
Make (if applicable):			Phase:					
Serial Number (if applicable):			Name Plate Voltages:					
RPM:			Name Plate Full Load Amps:					
Service Factor:			Pump is wired for:					
Start-Up Trial Data								
Insulation Test			Pre-Start Voltage Test					
L1 to GND	L2 to GND	L3 to GND	L1 - L2	L2 - L3	L3 - L1	L1 - GND	L2 - GND	L3 - GND
M	M	M	V	V	V	V	V	V
			Run Voltage Test			Run Amperage Test		
Phase Rotation			L1 - L2	L2 - L3	L3 - L1	L1	L2	L3
ABC		CBA						
Operator:								

CITY OF FRIENDSWOOD DESIGN CRITERIA MODIFICATION FORM

Modifications to standards identified in the Design Criteria Manual may be permitted by the City of Friendswood's City Engineer. The modification proposal must be submitted by a Professional Engineer licensed by the State of Texas and shall follow generally accepted engineering standards for traffic, sidewalk and other infrastructure as applicable, and such proposal contains the following information and substantiates the findings in Paragraph 4 below. If an appeal to the City of Friendswood City Engineer decision is

This entire form must be completed in its entirety. If form is submitted incomplete, it will be administratively rejected.

requested, the Construction Board of Adjustment (hereinafter referred to as "the City") will review that appeal.

PROJECT NAME:

PROJECT ENGINEER:

SUBMITTAL DATE:

SUBDIVISION NAME:

MODIFICATION LOCATION:

1. Set forth the proposed deviation to the technical standard.

SPECIFIC PROPOSED DEVIATION FROM TECHNICAL STANDARD:

2. Set forth the impact such deviation has on speed differential and street capacity, the likelihood of accidents, the long term maintenance and operation effect, the degree of functionality and efficiency, the technological advancements involved, and other relevant matters.

IMPACT OF DEVIATION:

3. Show a comparison of the technical standard to the proposed deviation with respect to overall safety and quality, speed differential, street capacity, existing and projected accidents, long-term maintenance and operation, degree of functionality, degree of efficiency, technological advancements, and other relevant matters.

COMPARISON OF TECHNICAL STANDARD TO PROPOSED DEVIATION:

4. Describe all mitigating improvements that reduce the negative impact of the proposed deviation on overall safety and quality, speed differential, street capacity, accident occurrences, long-term maintenance and operation, degree of functionality, degree of efficiency and demonstrating the degree to which the proposed deviation detrimentally affects the foregoing. Other relevant factors, including technological advances, should be explained by describing how they will affect the proposed development. Mitigating improvements can include but are not limited to, traffic control devices, pavement improvements, added acceleration or deceleration lanes, or reservoirs, and other on-site improvements.

MITIGATING IMPROVEMENTS THAT REDUCE NEGATIVE IMPACT:

SUMMARY & CONCLUSION/RECOMMENDATION FOR MODIFICATION:

List of Supporting Documentation Attached?

Yes____ **No**____

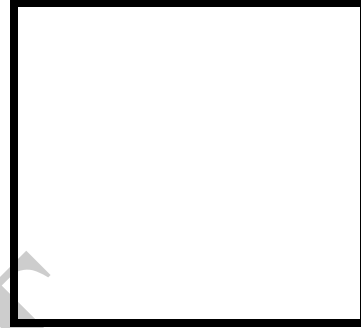
Engineer's Name

Engineering Firm

Address

City, ST, ZC

Telephone



Seal of Professional Engineer

Department of Public Works Use ONLY

Reviewed By:

Date

Modification Request Approved / Denied By:
Copies of Backup Information/Notes Attached

City Engineer

Date

NAME OF APPLICANT: _____
ADDRESS: _____
LEGAL DESCRIPTION: _____
TOTAL ACREAGE: _____
DATE OF PLAT OR RE-PLAT: _____

QUALIFICATIONS FOR PURCHASING REGIONAL DETENTION
PER THE INTERLOCAL AGREEMENT BETWEEN THE CITY OF FRIENDSWOOD AND GCCDD DATED MARCH 7, 2011:

SINGLE FAMILY RESIDENTIAL (SFR) LOTS OF 3.5 ACRES OR LESS QUALIFY
MUST PROVIDE SUPPORTING DOCUMENTATION FOR THE CALCULATION OF IMPERVIOUS COVER

FEE CALCULATIONS BASED ON SQUARE FEET OF IMPERVIOUS COVER:

_____ SF OF IMPERVIOUS COVER X \$0.25 = _____

PLEASE MAKE CHECKS PAYABLE TO THE GCCDD

* IMPERVIOUS COVER AREA SHALL BE DEFINED AS SURFACE COVER WHICH DOES NOT ALLOW THE PASSAGE OF STORM WATER INTO THE UNDERLYING SOIL, AND INCLUDES, BUT IS NOT LIMITED TO CONCRETE, ASPHALT, STABILIZED SOIL, TENNIS COURTS, WATER FEATURES, POOLS, SIDEWALKS, CRUSHED CONCRETE, LIMESTONE, AND ROOFING

APPENDIX B

Figures

Figure

1. Geometric Street Design Standards
2. Divided Roadway Cross Sections – Urban
3. Roadway Tapers For Subdivision Streets
4. Undivided Roadway Cross Sections – Urban
5. Typical Length of Median and Median Opening
6. Median Nose and Left Turn Bay Design
7. Cul-de Sac
8. Driveway spacing and other measurements
9. Off-Street Parking

FIGURE 1
GEOMETRIC STREET DESIGN STANDARDS (MINIMUM STANDARDS)

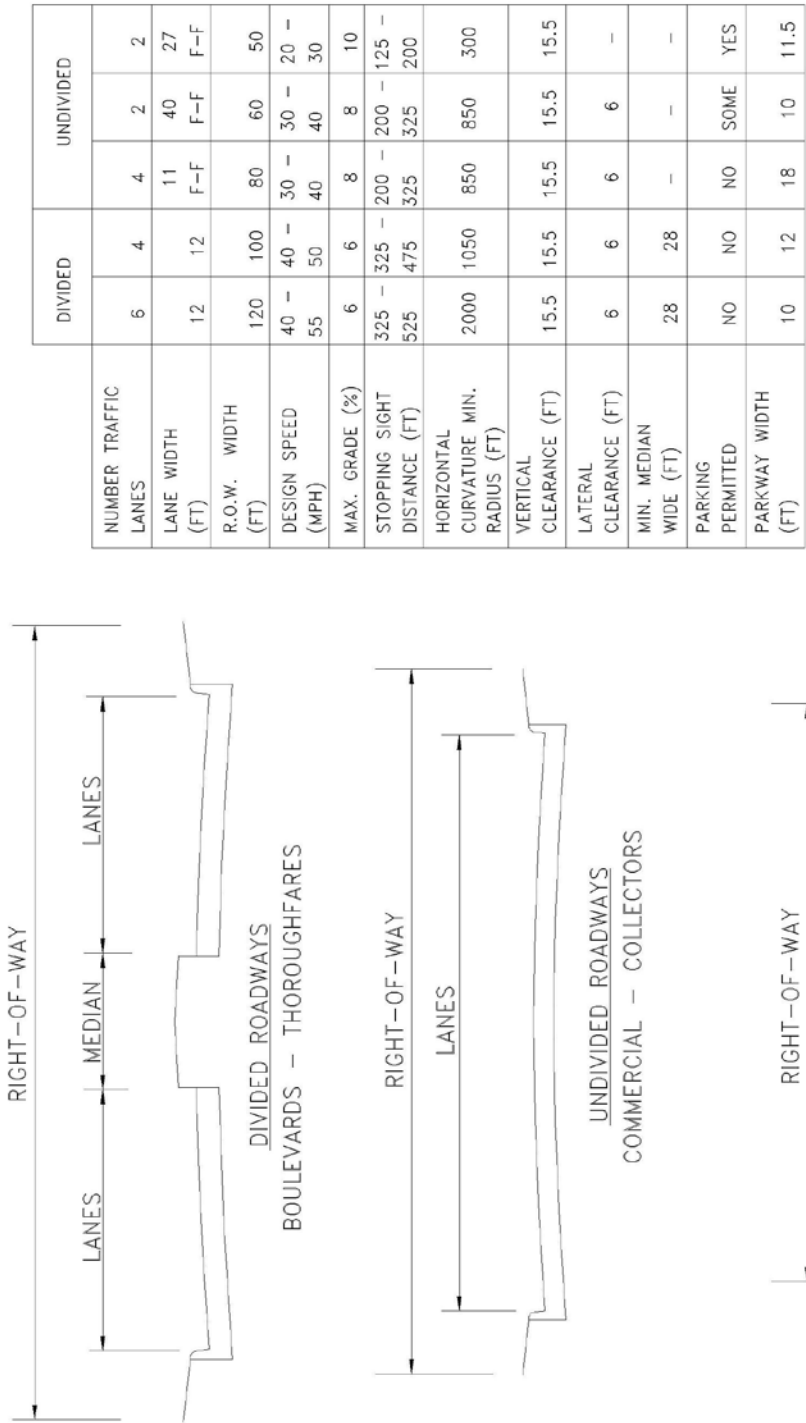
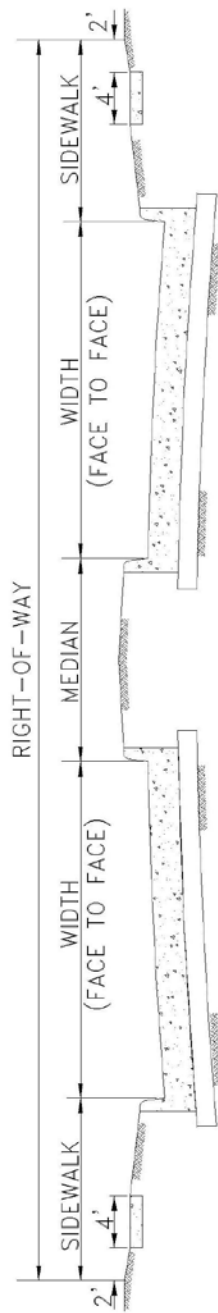


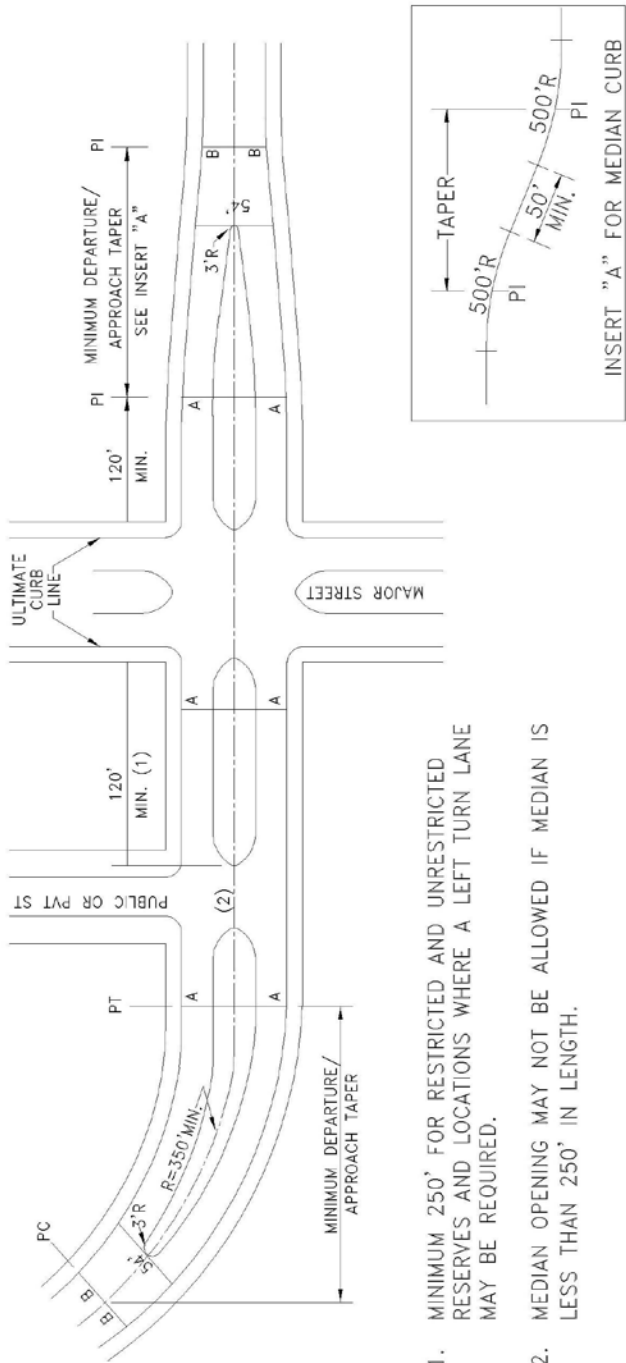
FIGURE 2
DIVIDED ROADWAY CROSS SECTIONS—URBAN



DIVIDED ROADWAY DIMENSIONS (In Feet)				
R.O.W.	80	100	100	
WIDTH	24	24	33	
MEDIAN	14	28	14	
SIDEWALK	9	12	10	

NOTE:
THIS DESIGN REPRESENTS THE PRESENCE OF A TYPICAL CURB AND GUTTER,
AND DOES NOT IMPLY OR RECOMMEND A SPECIFIC DRAINAGE DESIGN

FIGURE 3
ROADWAY TAPERS FOR SUBDIVISION STREETS



1. MINIMUM 250' FOR RESTRICTED AND UNRESTRICTED RESERVES AND LOCATIONS WHERE A LEFT TURN LANE MAY BE REQUIRED.
2. MEDIAN OPENING MAY NOT BE ALLOWED IF MEDIAN IS LESS THAN 250' IN LENGTH.

NOTE:

a. APPROACH AND DEPARTURE TAPER REQUIREMENT:

$L = \frac{WS^2}{60}$ WHERE L = LENGTH IN FEET
 S = SPEED IN M.P.H.
 W = LATERAL OFFSET IN FEET

S = 30 M.P.H. MINIMUM DESIGN SPEED FOR SUBDIVISION STREETS
 W = $A - B$

b. 350' MINIMUM CENTERLINE RADIUS FOR HORIZONTAL CURVE WITH APPROACH OR DEPARTURE TAPERS

QUICK REFERENCE GUIDE		
ROADWAY CROSS SECTION (FEET)	TAPER $L = \frac{WS^2}{60}$ (FEET)	
	A+A	B+B
80	60	150
80	40	300
80	27	400

FIGURE 4
UNDIVIDED ROADWAY CROSS SECTIONS—URBAN

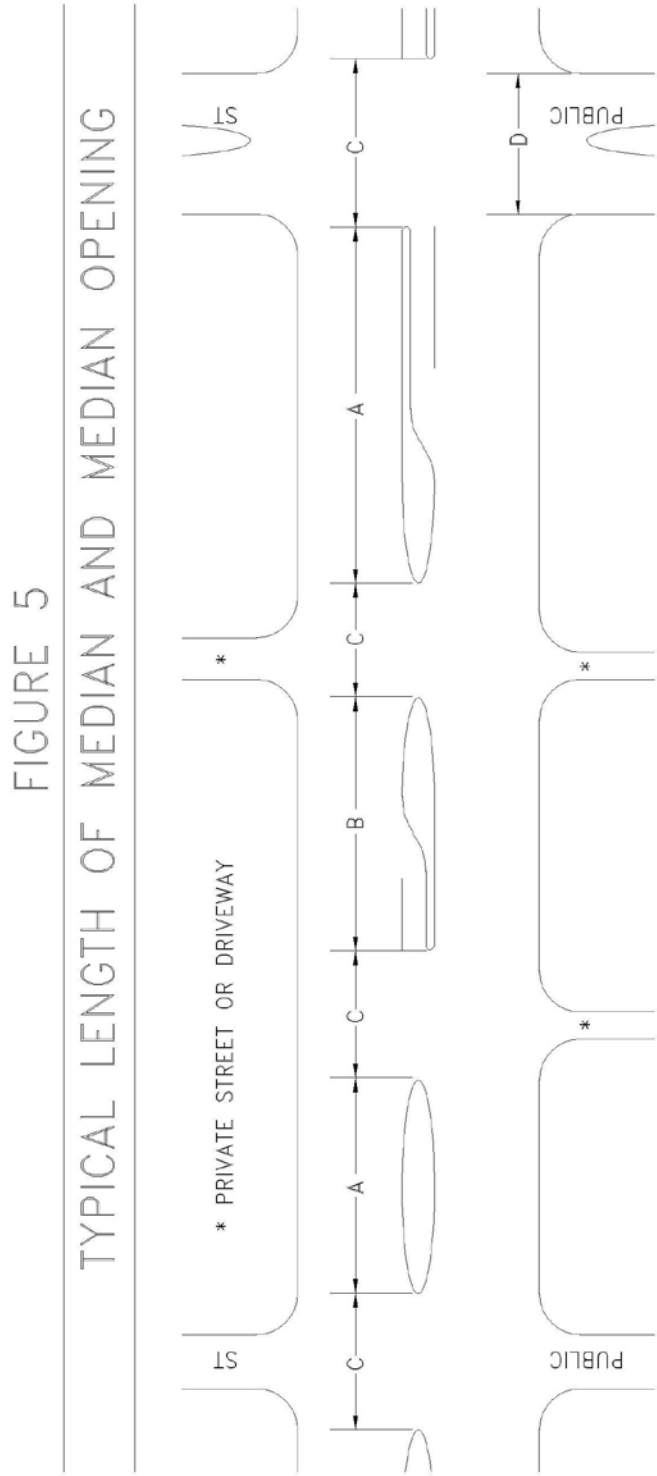


UNDIVIDED ROADWAY DIMENSIONS (In Feet)				
ABUTTING LAND USE	RESIDENTIAL		ALL OTHER	
	MFR-GHD	SFR	MINOR/(2) COMM.	
R.O.W.	50*(1)	60	60	80
WIDTH	27	27	40	44
SIDEWALK	11.5	16.5	10	18

(1) RIGHT-OF-WAY IN MFR-GHD SHALL MEAN THE DRAINAGE AND UTILITY EASEMENT UTILIZED WHEN PRIVATE STREETS ARE CONSTRUCTED.

(2) MINOR/COMM.— ANY PROPERTY USE OTHER THAN SINGLE FAMILY OR A COLLECTOR OR MINOR THOROUGHFARE

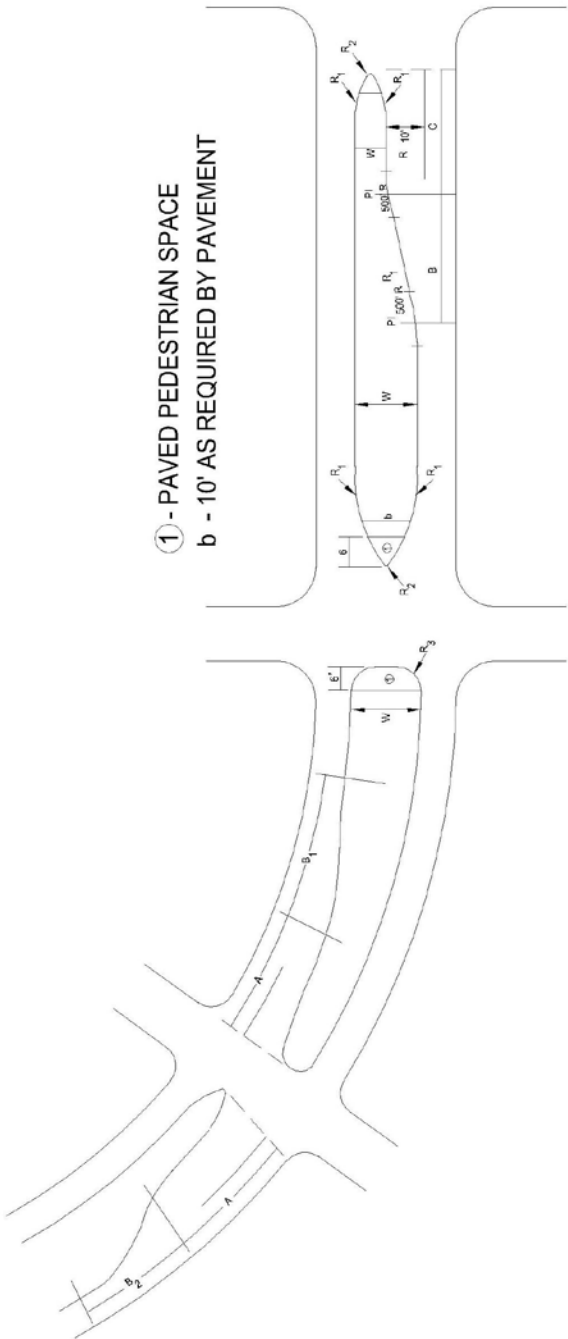
NOTE:
THIS DESIGN REPRESENTS THE PRESENCE OF A TYPICAL CURB AND GUTTER, AND DOES NOT IMPLY OR RECOMMEND A SPECIFIC DRAINAGE DESIGN



TYPICAL LENGTH OF MEDIAN OPENING "C" = 50' OR D+10', WHICHEVER IS GREATER.

IF PLANNED DIVIDED STREET IS:	PURPOSE OF MEDIAN INTERRUPTION			
	MAJOR STREET/ THOROUGHFARE (A)	COLLECTOR STREET (A)	LOCAL STREET (A)	PRIVATE STREET OR DRIVEWAY (B)
MAJOR STREET/ THOROUGHFARE	350'	300'	300'	300'
COLLECTOR STREET	300'	250'	250'	250'
LOCAL STREET	250'	250'	250'	200'

FIGURE 6
MEDIAN NOSE AND LEFT TURN BAY DESIGN

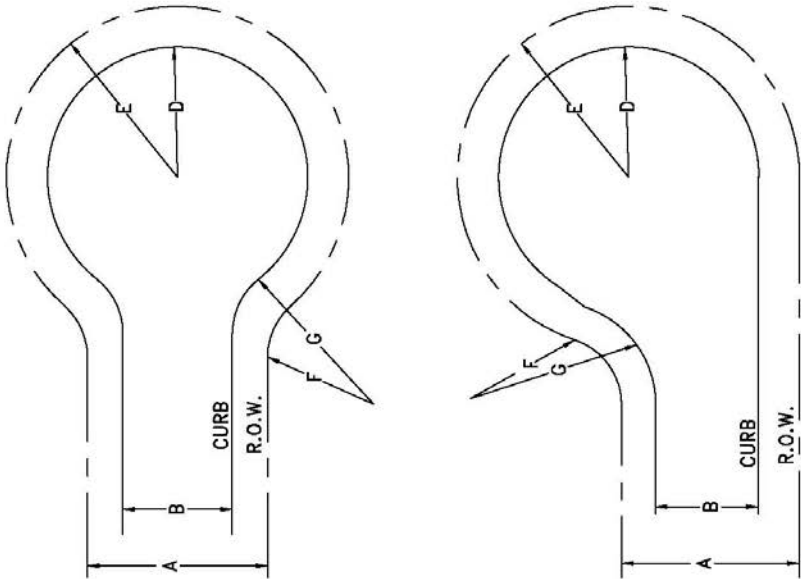


MEDIAN DIMENSIONS				
W	R ₁	R ₂	R ₃	
≤ 8'	NONE	$\frac{W}{2}$	NA	
>8' ≤ 38'	90°	$\frac{W}{5}$	NA	
>38'	NONE	NONE	15°	

NA - NOT APPLICABLE

LEFT TURN BAY DIMENSIONS	
A = 150' MINIMUM AT INTERSECTION OF TWO MAJOR STREETS. = 100' MINIMUM AT ALL OTHER INTERSECTIONS. B = 100' MINIMUM ON STRAIGHT ROADWAY. B ₁ = TAPER LENGTH MAY BE SHORTER IF IT IS ON A HORIZONTAL CURVE TO THE LEFT. B ₂ = TAPER LENGTH MAY BE LONGER IF IT IS ON A HORIZONTAL CURVE TO THE RIGHT. NOTE: DIMENSIONS MAY BE ADJUSTED AS DETERMINED BY TxDOT.	

FIGURE 7
CUL-DE-SAC DESIGN FOR STREET TERMINATION



ABUTTING LAND USE	
SINGLE FAMILY *	ALL OTHER
A ALL WIDTHS	60'
B ALL WIDTHS	ALL WIDTHS
D 50'	55'
E 60'	65'
F 25'	25'
G 35'	35'

ALL DIMENSIONS MEASURED IN FEET TO FACE OF CURB.

* NOT OPENING ONTO A MAJOR THOROUGHFARE

MAXIMUM CUL-DE-SAC LENGTH SHALL BE 750 FEET.

FIGURE 8
 DRIVEWAY SPACING AND OTHER MEASUREMENTS

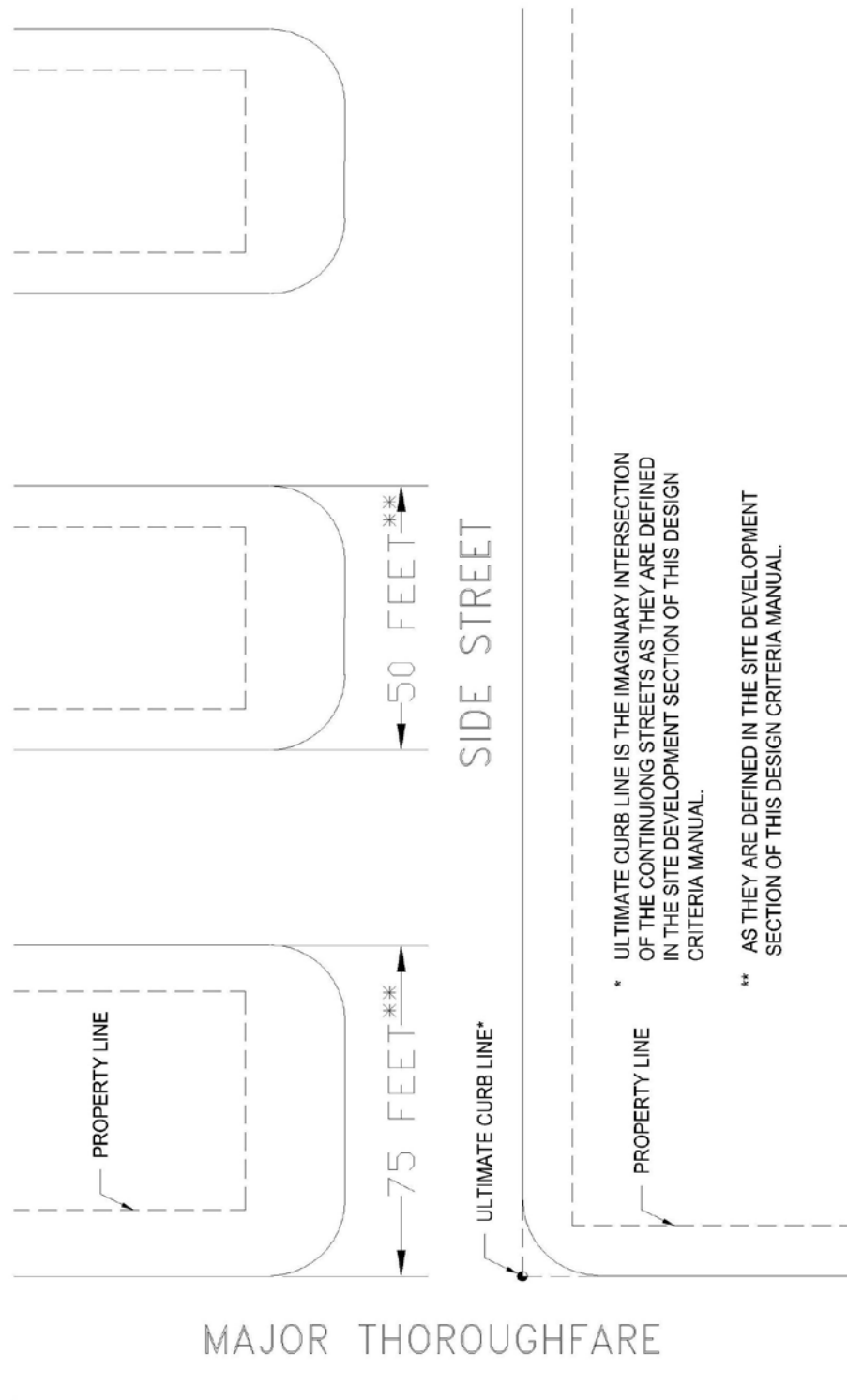
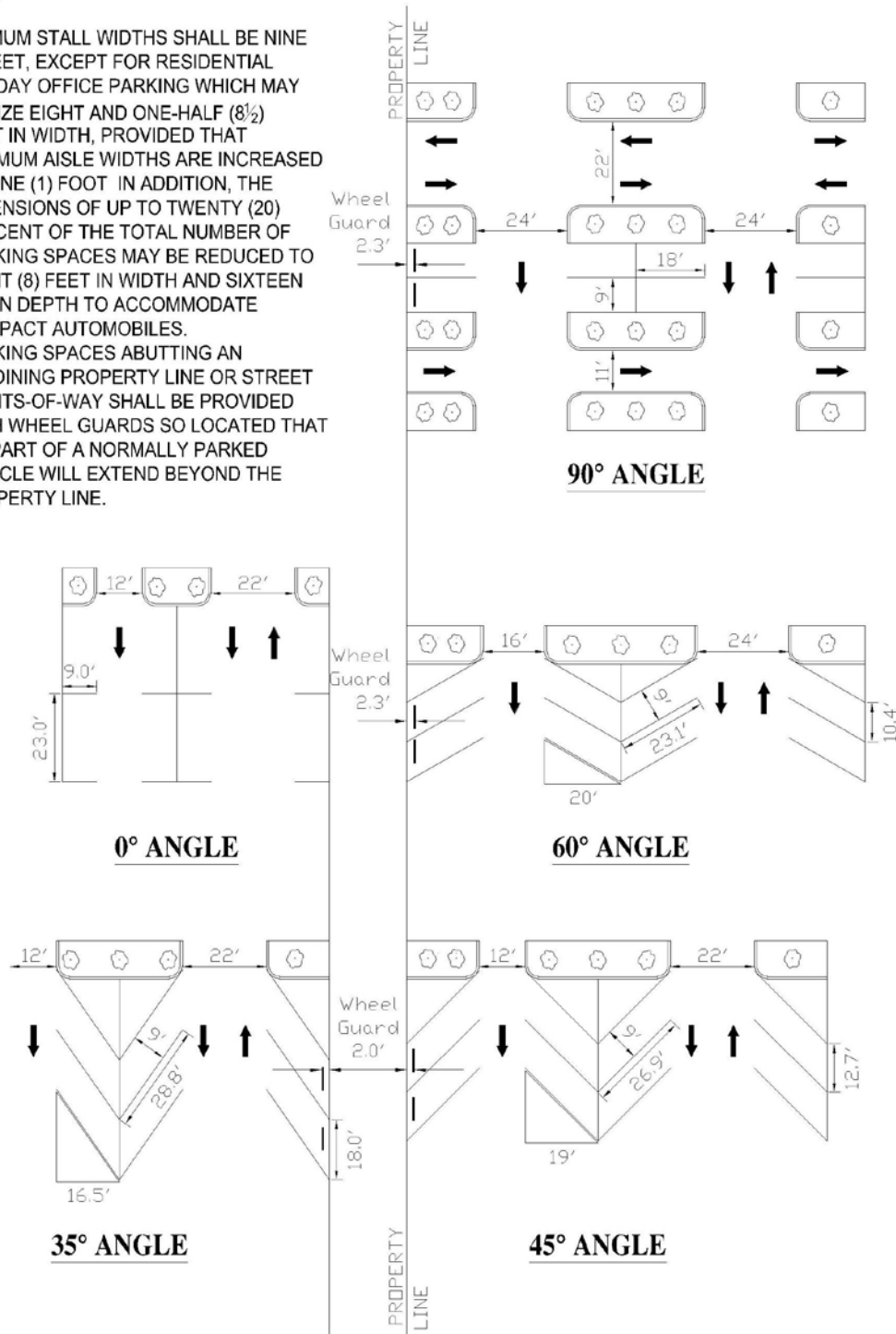


FIGURE 9 OFFSTREET PARKING

NOTES:

1. MINIMUM STALL WIDTHS SHALL BE NINE (9) FEET, EXCEPT FOR RESIDENTIAL ALL-DAY OFFICE PARKING WHICH MAY UTILIZE EIGHT AND ONE-HALF (8½) FEET IN WIDTH, PROVIDED THAT MINIMUM AISLE WIDTHS ARE INCREASED BY ONE (1) FOOT. IN ADDITION, THE DIMENSIONS OF UP TO TWENTY (20) PERCENT OF THE TOTAL NUMBER OF PARKING SPACES MAY BE REDUCED TO EIGHT (8) FEET IN WIDTH AND SIXTEEN (16) IN DEPTH TO ACCOMMODATE COMPACT AUTOMOBILES.
2. PARKING SPACES ABUTTING AN ADJOINING PROPERTY LINE OR STREET RIGHTS-OF-WAY SHALL BE PROVIDED WITH WHEEL GUARDS SO LOCATED THAT NO PART OF A NORMALLY PARKED VEHICLE WILL EXTEND BEYOND THE PROPERTY LINE.



APPENDIX C

Parking Group Table

Parking Use Category	Parking Spaces*
Accommodation	
<i>Accommodations:</i>	1.25 spaces per sleeping room or unit, plus the following meeting per banquet space: - less than 10 sq. ft. per sleeping room = none; - 10 to 20 sq. ft. per sleeping room = 30 spaces per 1,000 sq. ft. GFA; - 21 to 50 sq. ft. per sleeping room and over 50 sq. ft. per sleeping room = 20 spaces per 1,000 sq. ft. GFA.
<i>Accommodations with food:</i>	1.25 spaces per sleeping room or unit, plus 10 spaces per 1000 sq. ft. GFA restaurant lounge, plus the following for meeting/banquet space: - less than 10 sq. ft. per sleeping room = none; - 10 to 20 sq. ft. per sleeping room = 30 spaces per 1,000 sq. ft. GFA; - 21 to 50 sq. ft. per sleeping room and over 50 sq. ft. per sleeping room = 20 spaces per 1,000 sq. ft. GFA.
Adult Establishment	1 space for every 4 seats or 1 space for every 50 sq. ft. of customer service area, whichever is greater.
Agricultural, Forestry, Fishing, and Hunting Uses	2 per site plus 1 per 1,000 sq. ft. enclosed floor area.
Amusement and Recreation Industries	
<i>Arcade:</i>	1 space per 200 sq. ft. GFA.
<i>Driving/Archery/Shooting Range:</i>	1 space per 200 sq. ft. GFA of indoor facilities plus 1 space per tee or target.
<i>Fairground, Exhibition, Carnival:</i>	1 space per 500 sq. ft. of outdoor site area plus 1 space per 4 fixed spectator seats.
<i>Fitness and Recreational Sports:</i>	7 spaces per 1,000 sq. ft. GFA.
<i>Golf Course:</i>	1 space per 150 sq. ft. GFA of indoor facilities plus 5 spaces per green.
<i>Miniature Golf:</i>	1 space per 200 sq. ft. GFA of indoor facilities plus 1.5 spaces per hole.
<i>Rodeo, Circus, Auto/Motorcycle Racing:</i>	1 space per 3 spectator seats.
<i>Skateboarding, Water Slide:</i>	1 space per 200 sq. ft. GFA of indoor facilities plus 1 space per 2 persons design capacity of outdoor facilities.
<i>Sports fields, Swimming Pools, Private Parks, and Playgrounds:</i>	1 space per 100 sq. ft. GFA of indoor facilities plus 1 space per 4 persons design capacity of outdoor facilities, including both participants and spectators, as applicable.
<i>Tennis Courts and Other Sports Courts:</i>	2 spaces per court.
Arts, Entertainment, and Recreations	
<i>Arena:</i>	- .33 spaces per seat.
<i>Baseball Stadium:</i>	- .35 spaces per seat.
<i>Football Stadium:</i>	- .31 spaces per seat.

Parking Use Category	Parking Spaces*
Arts, Entertainment, and Recreations (cont.):	
<i>Theater (live performances):</i>	- .40 spaces per seat.
<i>All Other Public Assembly:</i>	- .25 spaces per person in permitted capacity.
<i>Convention Centers, Meeting/Banquet Facilities, not within a hotel or in a hotel, but exceeding 100 sq. ft. per sleeping room:</i>	- up to 25,000 sq. ft. = 30 spaces per 1,000 sq. ft. GFA; plus - 25,000 to 50,000 sq. ft. = 20 spaces per 1,000 sq. ft. GFA; plus - 50,000 and 100,000 sq. ft. = 10 spaces per 1,000 sq. ft. GFA; plus - 100,000 or more sq. ft. = 6 spaces per 1,000 sq. ft. GFA.
Automotive Repair	3 spaces per service bay (service bays not included as parking).
Broadcast and Telecommunication	1 space for each 300 sq. ft. GFA.
Car Wash	2 per wash bay plus 3 stacking spaces per bay.
Civic, Social, and Fraternal Associations:	1 space for each 300 sq. ft. GFA.
Educational Services (based on maximum design capacity)	
<i>Daycare Center or Pre-Elementary:</i>	.3 spaces per person licensed capacity enrollment.
<i>Elementary, Middle Schools:</i>	Higher of .2 spaces per seat in auditorium/gym or .25 spaces per student.
<i>Secondary Schools:</i>	Higher of .3 spaces per seat in auditorium/gym or .3 spaces per student.
<i>College or University:</i>	To be established based on a study of parking needs prepared specifically for the subject institution.
<i>Other Classroom based:</i>	6 spaces per 1,000 sq. ft. GFA;
<i>Other Not Classroom based:</i>	10 spaces per 1,000 sq. ft. GFA.
Finance and Insurance	
<i>General Business Offices:</i>	- up to 25,000 sq. ft. = 3.8 spaces per 1,000 sq. ft. GFA; plus - 25,000 to 100,000 sq. ft. = 3.4 spaces per 1,000 sq. ft. GFA; plus - 100,000 or more sq. ft. = 2.8 spaces per 1,000 sq. ft. GFA.
<i>Consumer Service Offices:</i>	4.6 spaces per 1,000 sq. ft. GFA.
<i>Data Processing, Telemarketing, Operations:</i>	6 spaces per 1,000 sq. ft. GFA.
Food Service	
<i>Restaurant:</i>	10 spaces per 1,000 sq. ft. GFA;
<i>Restaurant bar area:</i>	15 spaces per 1,000 sq. ft. GFA;
<i>Fast Food:</i>	8 spaces per 1,000 sq. ft. GFA;
<i>Take Out and Delivery Only:</i>	3 spaces per 1,000 sq. ft. GFA;
<i>Night Clubs:</i>	15 spaces per 1,000 sq. ft. GFA.
Gas Station	1 space for each side of a gasoline pump unit.
Health Care and Social Assistance	
<i>Medical Offices (not on hospital campus):</i>	4.5 spaces per 1,000 sq. ft. GFA.
<i>Medical Offices (on hospital campus):</i>	4 spaces per 1,000 sq. ft. GFA.

Parking Use Category	Parking Spaces*
Hospitals, Nursing, and Residential Care Facilities	
<i>Hospital/Medical Center:</i>	To be established based on a study of parking needs prepared specifically for the subject institution.
<i>Elderly Housing:</i>	1 space per dwelling unit.
<i>Congregate Care/Assisted Living:</i>	.35 spaces per dwelling unit.
<i>Group, Convalescent, and Nursing Home:</i>	.5 spaces per bed.
Information Services	3 spaces for each 5 employees on largest shift.; or 1 space per 600 sq. ft. GFA.
<i>Cinemas:</i>	- Single screen - 2 to 5 screens - 5 to 10 screens - Over 10 screens
Mining, Utilities, Construction, Manufacturing, Transportation, and Warehousing	3 spaces for each 5 employees on largest shift.; or 1 space per 600 sq. ft. GFA.
<i>Industrial/Manufacturing:</i>	1.85 spaces per 1,000 sq. ft. GFA plus required parking spaces for office, sales, or similar use where those uses exceed 10% GFA.
Mobile Home	2.5 spaces per trailer unit.
Non-Store Retailers	1 space for each 2,000 sq. ft. GFA.
Other Services	1 space for each 250 sq. ft. GFA.
Professional, Scientific, and Technical Services; Management of Companies and Enterprises; Administration/Support Services	
<i>General Business Offices:</i>	- up to 25,000 sq. ft. = 3.8 spaces per 1,000 sq. ft. GFA; plus - 25,000 to 100,000 sq. ft. = 3.4 spaces per 1,000 sq. ft. GFA; plus - 100,000 or more sq. ft. = 2.8 spaces per 1,000 sq. ft. GFA.
Public Administration	1 space for each 300 sq. ft. GFA.
Real Estate, Rental, and Leasing	1 space for each 300 sq. ft. GFA.
Religious Organizations	.4 spaces per seat.
Residential Uses	
<i>Single Family Dwellings</i>	- less than 3,000 sq. ft. = 2 spaces per dwelling unit; - more than 3,000 sq. ft. = 3 spaces per dwelling unit
<i>Multi-Family Dwellings Rental:</i>	- 1 space per dwelling unit for efficiency units; - 1.5 spaces per dwelling unit for 1st bedroom in units with 1 or more bedrooms, plus .25 spaces for each additional bedroom.
<i>Multi-Family Dwellings Owned:</i>	- 1.0 spaces per dwelling unit for efficiency units; - 1.75 spaces per dwelling unit for the 1st bedroom in units with 1 or more bedrooms, plus .25 spaces for each additional bedroom.
<i>Rental in University District</i>	1 space per dwelling unit for efficiency and 1 bedroom units; plus .5 spaces for each additional bedroom.

Parking Use Category	Parking Spaces*
Retail Trade	4 spaces per 1,000 sq. ft. GFA.
Shopping Centers	- 6 spaces per 1,000 sq. ft. GFA up to 200,000 sq. ft.; - 5.5 spaces per 1,000 sq. ft. GFA over 200,000 sq. ft.
Transit and Ground Passenger Transportation; Scenic & Sightseeing	1 space per 100 sq. ft. GFA.
Truck Transportation; Warehousing & Storage	1 space for each 1,000 sq. ft. non-office floor area, plus 1 space for each 300 sq. ft. office area.
Vehicle Dealers	1 space for each 5,000 sq. ft. of lot area.
Wholesale Trade	1 space per 2,000 sq. ft. gross floor storage per sales area.

**Staff may approve a 5% deviation from the recommended parking requirements, unless an alternative plan is approved by the Planning and Zoning Commission.*

DRAFT

APPENDIX D

Qualified Tree List

<u>Common name</u>	<u>Botanical name</u>	<u>Class</u>	<u>N/I</u>	<u>Site</u>	<u>Light</u>	<u>Size</u>	<u>Foilage</u>
Bald Cypress	Taxodium distichum	1	N	2, 3	2	1	D
Bur Oak	Quercus macrocarpa	1	N	2	1	1	D
Cedar Elm	Ulmus crassifolia	1	N	2	1	2	D
Drummond Red Maple	Acer rubrum var. drummondii	1	N	2	1	2	D
Eastern Redbud	Cercis canadensis	1	N	2	2	2	D
Live Oak	Quercus virginiana	1	N	2	1	1	SE
Overcup Oak	Quercus lyrata	1	N	2, 3	1	1	D
Pecan	Carya illinoensis	1	N	2	1	1	D
Possumhaw Holly	Ilex decidua	1	N	2	1, 2	3	D
Shumard Red Oak	Quercus shumardii	1	N	2	1	1	D
Southern Magnolia	Magnolia grandiflora	1	N	2	1	1	E
Swamp Chestnut Oak	Quercus michauxii	1	N	2, 3	1	1	D
Sweet-Bay Magnolia	Magnolia virginiana	1	N	2	2	2	E
Wax Myrtle	Myrica cerifera	1	N	2, 3	1	3	E
American Elm	Ulmus americana	2	N	2	1	1	D
American Sycamore	Platanus occidentalis	2	N	2	1	1	D
Anacua/Sandpaper Tree	Ehretia anacua	2	N	2	1	2	E
Arrow-wood Viburnum	Viburnum dentatum	2	N	2	2	3	D
Black Hickory	Carya texana	2	N	2	1, 2	2	D
Black Walnut	Juglans nigra	2	N	2	1, 2	1	D
Blackgum	Nyssa sylvatica	2	N	2, 3	1, 2	3	D
Callery Pear/Braford	Pyrus calleryana	2	I	2	1	3	D
Carolina buckthorn	Rhamnus caroliniana	2	N	2	1, 2	3	D
Chalk Maple	Acer leucoderme	2	N	2	2	2	D
Cherry Laurel	Prunus caroliniana	2	N	2	2	2	E
Chinese Elm	Ulmus parvifolia	2	I	2	1	2	D
Chinquapin Oak	Quercus muhlenbergii	2	N	2	1	1	D
Common Crapemyrtle	Lagerstroemia indica	2	I	2	1	3	D
Common Fig	Ficus carica	2	I	2	1	3	D
Common Persimmon	Diospyros virginiana	2	N	2	1	2	D
Eastern Red Cedar	Juniperus virginiana	2	N	2	1, 2	2	E
Eve's Necklace	Sophora affinis	2	N	1	1	3	D
Green Ash	Fraxinus pennsylvanica	2	N	2, 3	1, 2	1	D
Huisache	Acacia farnesiana	2	N	1	1	3	D
Loblolly Pine	Pinus taeda	2	N	2	1	1	E
Mexican Plum	Prunus mexicana	2	N	1	1	3	D
Nuttall Oak	Quercus nuttallii	2	N	2, 3	1	1	D
Ornamental Holly	Ilex spp.	2	I	2	1, 2	3	E
Paloverde	Parkinsonia aculeata	2	N	1	1	2	D

<u>Common name</u>	<u>Botanical name</u>	<u>Class</u>	<u>N/I</u>	<u>Site</u>	<u>Light</u>	<u>Size</u>	<u>Foliage</u>
Parsley Hawthorn	Crataegus marshallii	2	N	2	2	3	D
Post Oak	Quercus stellata	2	N	2	2	1	D
Red Bay	Persea borbonia	2	N	2	2	2	E
River Birch	Betula nigra	2	N	2, 3	2	2	D
Rough-leaf Dogwood	Cornus drummondii	2	N	1, 2	3	3	D
Rusty Blackhaw Viburnum	Viburnum rufidulum	2	N	2	2	3	D
Sassafras	Sassafras albidum	2	N	2	2	2	D
Scarlet (Red) Buckeye	Aesculus pavia	2	N	2	2	3	D
Shagbark Hickory	Carya ovata	2	N	2	1	1	D
Slash Pine	Pinus elliottii	2	I	2	1	1	E
Snowbell	Styrax americana	2	N	2	1, 2	3	D
Southern Red Oak	Quercus falcata var. pagoda	2	N	2	1	1	D
Sweetgum	Liquidambar styraciflua	2	N	2	1	1	D
Texas Mountain-Laurel	Sophora secundiflora	2	N	1	1	3	E
Texas Persimmon	Diospyros virginiana(male)	2	N	1	1	3	D
Texas Pistache	Pistacia texana	2	N	1	1	3	D
Texas Redbud	Cercis canadensis texensis	2	N	1, 2	2	3	D
Water Hickory	Carya aquatica	2	N	2, 3	1	2	D
Water Oak	Quercus nigra	2	N	2, 3	1	1	D
Western Soapberry	Sapindus drummondii	2	N	2	1	2	D
White Ash	Fraxinus americana	2	N	2	1	1	D
White Oak	Quercus alba	2	N	2	1	1	D
Willow Oak	Quercus phellos	2	N	2, 3	1	1	D
Winged Elm	Ulmus alata	2	N	2	1	2	D
Woollybucket Bumelia	Bumelia lanuginosa	2	N	2	2	2	D
Wright Acacia	Acacia wrightii	2	N	1	1	3	D
Yaupon Holly	Ilex vomitoria	2	N	2	1, 2	3	E
American Elderberry	Sambucus canadensis	3	N	2	2	3	D
American Holly	Ilex opaca	3	N	2	2	2	E
American Hornbeam	Carpinus caroliniana	3	N	2	2	2	D
Black Locust	Robinia pseudoacacia	3	N	2, 3	1	2	D
Black Willow	Salix nigra	3	N	3	1	2	D
Box-Elder Maple	Acer negundo	3	N	2	2	2	D
Camphor-Tree	Cinnamomum camphora	3	I	2	1	2	E
Catalpa	Catalpa bignonioides	3	N	2	1	2	D
Common Pear	Pyrus communis	3	N	2	1	2	D
Eastern Cottonwood	Populus deltoides (male)	3	N	2	1	1	D
Flowering Crabapple	Malus spp.	3	I	2	1	3	D
Hercules-Club Prickly-Ash	Zanthoxylum clava-herculis	3	N	1	1	3	D
Honey-Locust	Gleditsia triacanthos	3	N	2, 3	1	2	D
Japanese Yew	Podocarpus macrophyllus	3	I	2	1	2	E
Japanese Maple	Acer palmatum	3	I	2	2	3	D
Loquat	Eriobotrya japonica	3	I	2	2	3	E
Mesquite	Prosopis glandulosa	3	N	1	1	2	D

<u>Common name</u>	<u>Botanical name</u>	<u>Class</u>	<u>N/I</u>	<u>Site</u>	<u>Light</u>	<u>Size</u>	<u>Foliage</u>
Mexican Buckeye	Ungnadia speciosa	3	N	1	1	3	D
Red Mulberry	Morus rubra	3	N	2	1	2	D
Sugar Hackberry	Celtis laevigata	3	N	2	1, 2	2	D
Vitex	Vitex agnus-castus	3	I	1	1	3	D
Water Tupelo	Nyssa aquatica	3	N	3	2	1	D
Weeping Willow	Salix babylonica	3	I	3	1	2	D
Arborvitae	Thuja spp.	4	I				
Arizona Ash	Fraxinus velutina	4	I				
Berlandier Ash	Fraxinus berlandieriana	4	I				
Chinaberry	Melia azedarach	4	I				
Chinese Pistache	Pistacia chinensis	4	I	2	1	2	D
Chinese Tallow	Sapium sebiferum	4	I				
Eucalyptus	Eucalyptus spp.	4	1	1, 2	1	3	E
Golden-Raintree	Koelreuteria paniculata	4	I	2	1	2	D
Japanese Black Pine	Pinus thunbergi	4	I	2	1	2	E
Mimosa(Silktree)	Albizia julibrissin	4	I				
Mulberry	Morus alba	4	I	2	1	2	D
Siberian Elm	Ulmus pumila	4	I				
Silver Maple	Acer saccharinum	4	I				
Tulip-Tree	Liriodendron tulipifera	4	I	2	1	1	D

Trees are divided into four classes. Class 1 and 2 trees are considered the most valuable in enhancing the environment and are the most likely to prosper in the Friendswood area. Therefore, only Class 1 and 2 trees shall be approved as new plantings for a) city parks and property, and parking lots and; b) for streets or other public right-of-ways, respectively, unless otherwise approved by the City Engineer on the advice of an Urban Forester. Species that are classified as shade trees will reach a height and size that will conflict with overhead powerlines, permanent structures, or the canopy will exceed the limits of a confined space. Species that are classified as small trees will not provide the protection or aesthetic impact of a large shade tree, yet they are suitable for planting beneath powerlines and are good alternatives for areas of limited space.

Class 1: For the most part this class is for trees that are native, will do relatively well in the Friendswood area, have few diseases or pest problems, are easy to find in local nurseries, and with few exceptions (redbud, possumhaw, and waxmyrtle) are larger in size.

Class 2: This class is for trees that are mostly native, will still do well in the Friendswood area, have little disease or pest problems, sometimes not quite as easy to find in nurseries, are more varied in size, and in many cases are more suitable for wildlife. These trees tend to have larger and messier fruit and/or are thornier than trees in Class 1. Some of these trees are also more prone to some decay at maturity and might not do as well in urbanized areas.

Class 3: This class starts to pick up more introduced species, the trees might or might not do as well in the Friendswood area, require a little more maintenance and care, the natives

might be harder to find in a nursery while the introduced species may be more readily available and in some cases these trees are more prone to decay, disease and pest problems.

Class 4: this class is exclusively introduced species. They may or may not do well in Friendswood. If they do grow well they have the potential to become invasive species and cause problems for local ecosystems and are more prone to decay, disease and pest problems. **NOT RECOMMENDED FOR PLANTINGS.**

Classifications:

- N – Native
- I – Introduced

Site:

- 1 – Xerophytic (requires little water)
- 2 – Mesic (requires moderate water with good drainage)
- 3 – Aquatic (tolerates poor drainage once established 3 years)

Light:

- 1 – Full Sun (requires a minimum of 6 hours of direct sunlight)
- 2 – Partial Sun (requires a minimum of 3 to 6 hours of direct sunlight)
- 3 – Shade (requires less than 3 hours of direct sunlight)

NOTE: Lower rating number on this scale is the minimum, but can use the next higher rating (i.e. a rating of 2 can also use the rating of 1, a rating of 3, can also use the ratings of 1 and 2)

Size:

- 1 – 60 feet and greater ultimate height (large shade tree)
- 2 – 30 to 60 feet in ultimate height (medium tree)
- 3 – 30 feet and less in ultimate height (small tree)

Foliage:

- D – Deciduous (sheds leaves annually) If placed on the south and west walls will reduce indoor temperatures in summer by shading the roof and walls. In winter, these trees allow sunlight through to help heat the building.
- E – Evergreen (having green leaves/needles throughout the year) can create a wind break if placed on the northwest side of a building.
- SE – Semi evergreen

For example, the code for Live Oak is 1/N/2/1/1, which indicates that the Live Oak is a Class 1 species that is native to Texas, requires moderate water with good drainage, demands or tolerates full sun, and will exceed 60 feet in ultimate height. As a shade tree, the Live Oak will provide protection and has aesthetic impact but the tree is not suitable for planting beneath powerlines or within confined spaces, or in streets or other public rights-of-way.

APPENDIX E

Downtown District Amenities

Streetscape furnishings, as required by City of Friendswood Code of Ordinances, Appendix C – Zoning Ordinance for the Downtown District, are important functional elements and amenities. They should be of high quality, designed for outdoor use, and require minimal maintenance. All provided amenities shall be permanently maintained by the property owner, including paved walkways.

SEATING

Seating should be durable and comfortable. Sharp edges and poorly designed or fabricated furniture should be avoided. Metal is the required material. The seating design should complement other furnishings. All seating should be secured permanently to paved surfaces for safety and to avoid vandalism. The bench below is the preferred model; however, other benches of similar size and features may be approved by the Planning and Zoning Commission.



Manufacturer: Webcoat Products
Product: Metal benches
Model: B5WBCLASSIC
Size: 5'
Color/finish: Black finish
Aluminum frame w/contoured backs

TREE WELLS

Tree wells are an attractive way to protect trees planted in paved areas. Appropriate tree grates and tree wells should be similar to the following:



TREE GRATES

Manufacture: Neenah Foundry Company
Product: Tree grate
Model: ASTM A-48, Metropolitan Series



TREE WELLS

LIGHT POLES

Lighting plays an important part in the character, function, and security of a streetscape. It should be consistent with other streetscape elements and integrate the historic nature of the Downtown District. Light poles shall be the “Bishop’s Crook” style. The light pole below is the preferred model; however, other light poles of similar size and features may be approved by the Planning and Zoning Commission.

	Manufacturer:	Hadco
	Product:	Aluminum Pole w/Teardrop Fixture
	Color/finish:	Black powder coat
		Lighting must be metal halide or LED with full cutoff or semi cutoff fixtures that emits 7,000 to 8,000 lumen, or the equivalent thereof, and 5,000 to 6,000K (Kelvin – color temperature).

Lamp height maximum shall be 12’. Lamp height minimum shall be 10’. Lamp shall be positioned towards the rights-of-way to illuminate the public walkway.

Lamp height is the actual lamp height above ground measured at the bottom of the lamp fixture, where the globe or bulb begins.

TRASH RECEPTACLES

Trash receptacles should be easily accessible for pedestrians and trash collection. They must be placed to be unobtrusive yet effective and their design should relate to other site furnishings. Trash receptacles should be firmly attached to paving to avoid vandalism. They should include covered tops and sealed bottoms to keep contents dry and out of sight at all times. Appropriate trash receptacles should be similar to the following:

	Manufacturer:	Victor Stanley, Inc.
	Product:	Trash receptacle
	Model:	Steelsites RB series
	Color/finish:	Black finish TGIC polyester powder coat

PAVERS

Brick pavers must be used to construct the required brick-paved sidewalk in accordance with the specifications below. The paver color and pattern below is the preferred design; however, other pavers of similar colors and patterns may be approved by the Planning and Zoning Commission.

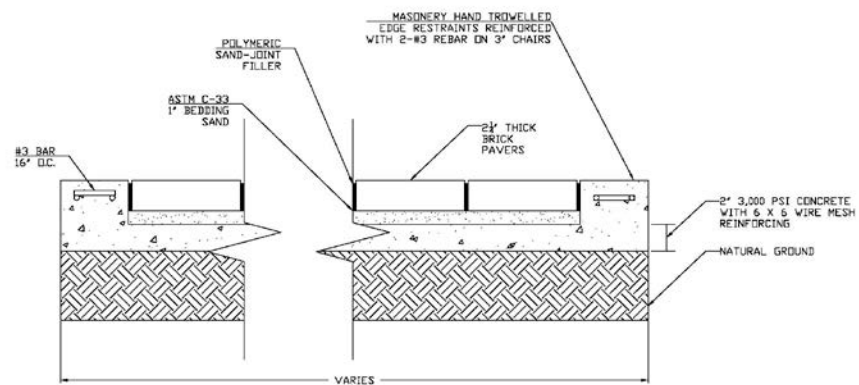
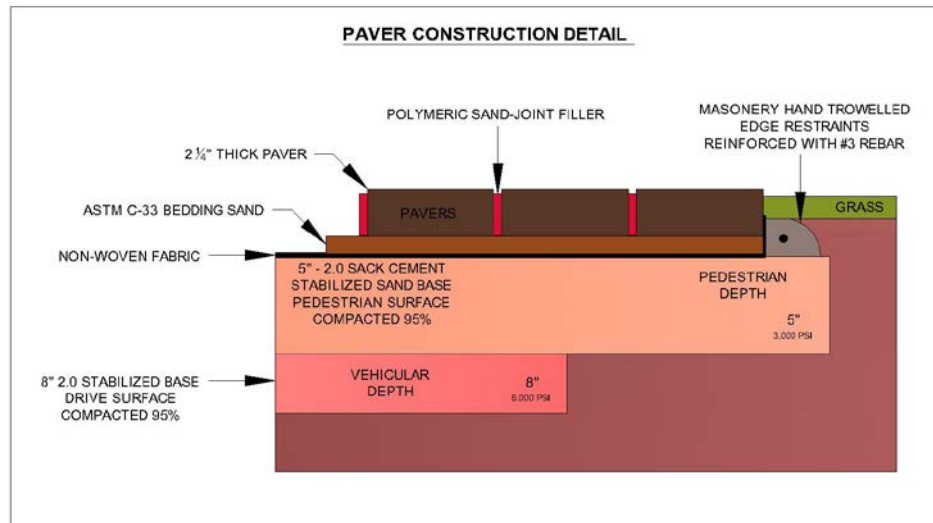
	Manufacturer:	Pine Hall Brick Company, Inc.
	Product:	Pavers
	Model:	Pathway Series, Full Range
	Size:	4" W x 8" L x 2 1/4" thick
	Color:	Red
	Pattern:	Stretcher Bond

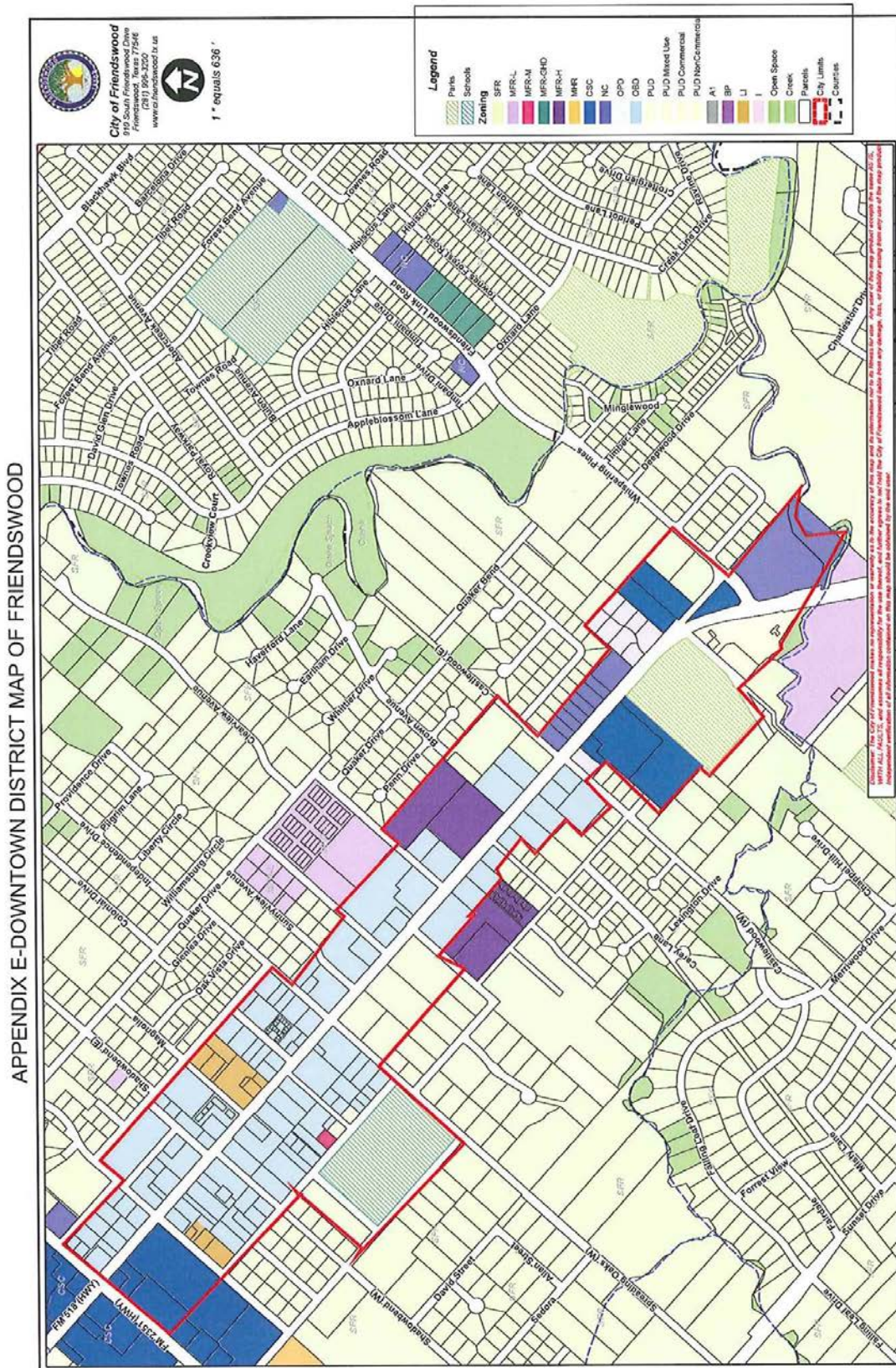
Brick pavers must be set on a sand base with a concrete border as stated below and shown on the attached construction detail drawing. No concrete or stamped concrete is allowed for the sidewalk surface.

Paver installation specs:

- 5" of 2.0 sack cement stabilized sand base
- Non-woven fabric weed block
- 1" of ASTM C-33 bedding sand
- 2 1/4" thick brick unit paver
- Polymeric joint sand
- Masonry hand troweled edge restraints reinforced with #3 rebar

If the pavers are a part of a drive surface for vehicular traffic, an 8" 2.0 stabilized base drive surface, compacted 95% must be installed below the 5" of 2.0 sack cement stabilized sand base.





APPENDIX F

Culverts and Driveways Policy

The purpose of this policy is to establish guidelines, procedures, and standard practices regarding installation, maintenance, and repair of culverts and driveways in new and old subdivisions with open ditches.

I. REPLACEMENT OF DRIVEWAY/CULVERTS DUE TO REPAIRS

- A. If a failure occurs on an existing paved driveway located within the City rights-of-way due to a defect in the existing public infrastructure (i.e., leaking or broken water or sanitary sewer line, failure in storm sewer, culvert failure, etc.) the City will remove the damaged pavement, repair or replace the damaged infrastructure, and replace the pavement up to the rights-of-way line at no cost to the property owner.
- B. If a failure occurs on an existing paved driveway located within the City rights-of-way due to age, wear, or subsidence, and the public infrastructure is found to be in good condition, the property owner shall be responsible for the removal and replacement of the driveway, such replacement being accomplished according to the Ordinances, Design Criteria, Standard Details, and Technical Specifications of the City. In addition, the property owner shall be responsible for any damages that may occur to existing public infrastructure, including the culverts, during the construction process. The property owner shall obtain a building permit from the City for the driveway replacement and shall call in for inspections as needed.
- C. If the driveway to be replaced is on an open ditch street, the culverts may be replaced with the same size as existing with no drainage calculations required, unless:
 - i. They are smaller than the 18" minimum requirements, or
 - ii. The whole drainage ditch is being enclosed (see paragraph III).
- D. When new culverts are installed and concrete paving is being replaced, construction joints shall be installed as shown in Detail A.

II. PROPOSED DRIVEWAY CONSTRUCTION/CULVERT INSTALLATION

- A. When a property owner chooses to make improvements to an existing driveway, the property owner is responsible for removing and replacing the culverts as well as the existing paving.

- B. When a property owner chooses to construct a new driveway, the property owner shall install the proper driveway culverts and new pavement.
- C. All work shall be completed in accordance with the City of Friendswood Technical Specifications and Standard Details, latest edition.
- D. When new culverts are installed and concrete paving is being installed, construction joints shall be installed as shown in Detail A.

III. PROPOSED CULVERT INSTALLATION FOR THE PURPOSE OF ENCLOSING OPEN DITCHES FRONTING RESIDENTIAL PROPERTY.

A. Development Permit:

- i. An approved City of Friendswood Development Permit shall be required prior to installation of residential storm sewer (unless the storm sewer is being installed as part of a new residential building, in which case it shall fall underneath the building permit). Development permits shall only be valid for 1 year.
- ii. A plan drawing shall be submitted with the Development Permit Application. The plan shall be drawn to a 1" = 20' scale.
- iii. Pipe diameters, pipe flow lines, inlet flow lines, and inlet rim elevations shall be shown on the drawings.
- iv. All residential storm sewer projects shall extend from property line to property line.
- v. A Traffic Control Plan shall be provided if any of the proposed work involves obstruction of traffic or lane closures of City streets.
- vi. All residential storm sewers shall be made of Reinforced Concrete Pipe (RCP) Class III, with a minimum 18" diameter, and shall be designed for the purpose intended.
- vii. Alternate sizes and styles may be used as long as they meter the same square inch area of the required pipe size, and is approved by the City Engineer.

B. Installation:

- i. Storm sewer inlets shall be located no farther than 15 feet from the property line.
- ii. Storm sewer inlets shall be no farther than 30 feet from center to center.

- iii. Only Type “A” Inlet (Detail B) or Type “S” Inlet (Detail C) shall be used.
- iv. Inlet and junction box size and design shall be approved by the City Engineer.
- v. High points shall be located halfway between inlets with mild swales (see Detail D).
- vi. Elevations on inlet rims shall be a minimum of 3 inches lower than the surrounding high points (see Detail D).
- vii. All storm sewer projects are subject to inspections by City of Friendswood personnel before they are covered up. Such inspections may require changes or corrections to all or part of the culvert installations during any phase of the work. All inspections shall be called into the Building Division at (281) 996-3201 a minimum of 24 hours prior to inspections.
- viii. Contractor shall have a means to determine flows on site (i.e., laser level, level, etc.).
- ix. All storm sewers shall receive a final inspection and approval by City of Friendswood personnel upon completion. Any deficiencies noted shall be completed within 30 days of such notice.
- x. The City of Friendswood reserves the right to adjust or remove all or part of the storm sewer at any time for any reason.
- xi. All work shall be completed in accordance with the latest revisions of this Design Criteria Manual, City of Friendswood Technical Specifications, and City of Friendswood Standard Detail; which can be found online at:

www.ci.friendswood.tx.us.com/publications

IV. ACKNOWLEDGEMENT

By signing the permit application, the applicant acknowledges they have received and fully understand the requirements pertaining to the installation of residential storm sewers.



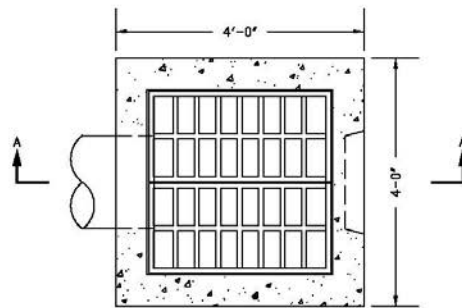
1. EXPANSION JOINT ON CONCRETE STREETS SHALL BE NOMINAL REDWOOD OR ASPHALTIC EXPANSION JOINT MATERIAL WITH 1" PULL-OF STRIP TO BE FILLED WITH APPROVED JOINT SEALANT.
2. 1½" LIP (CONCRETE STREETS ONLY) SHALL NOT BE REQUIRED ON STREETS WITH 4' X 12" MOUNTABLE CURB.
3. CONCRETE PAVEMENT HEADERS SHALL BE BUILT IN ACCORDANCE WITH CITY OF FRIENDSWOOD PAVING DETAILS.
4. CONNECTION TO EXISTING ASPHALT STREETS SHALL BE MADE BY BLOCKING NEW CONCRETE WITH EDGE OF PAVEMENT. A 8" DEEP BY 12" WIDE BEAM SHALL BE PLACED ALONG THE EDGE OF THE ASPHALT PAVEMENT. NO EXPANSION JOINT MATERIAL REQUIRED BETWEEN EXISTING ASPHALT STREET AND NEW CONCRETE DRIVEWAY.
5. DAMAGE TO EXISTING STREETS, WHETHER ASPHALT OR CONCRETE, SHALL BE REPAIRED AT CONTRACTORS EXPENSE.
6. ALL CONCRETE SHALL BE CLASS "A", 3,000 PSI AT TWENTY-EIGHT DAYS.
7. USE MATERIAL AND DIMENSION AS SPECIFIED IN STORM SEWER DETAILS FOR TRENCH WIDTHS AND BACKFILL.
8. NO MORE THAN ONE (1) DRIVEWAY ON LOTS WITH LESS THAN 120' OF FRONTAGE.
9. 24" X ¾" DOWELS SHALL BE EMBEDDED A MINIMUM OF 12" INTO EXISTING CONCRETE ROADWAY. DOWELS TO BE INSTALLED AT 12' O.C.

PLAN - ALL STREETS

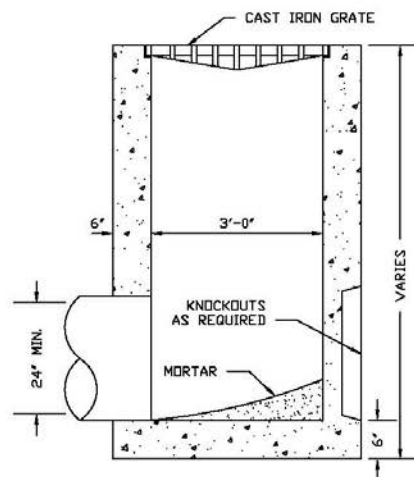


DEPARTMENT OF PUBLIC WORKS

DRAWING: B.S. #11



PLAN



SECTION A-A

TYPE "A" INLET

NOTES:

1. USE #4 REBAR IN 12" D.C.E.W.
2. CONCRETE SHALL BE CLASS "A" WITH A TWENTY-EIGHT DAY COMPRESSIVE STRENGTH OF 4,000 PSI.
3. GRATES SHALL BE CAST IRON.



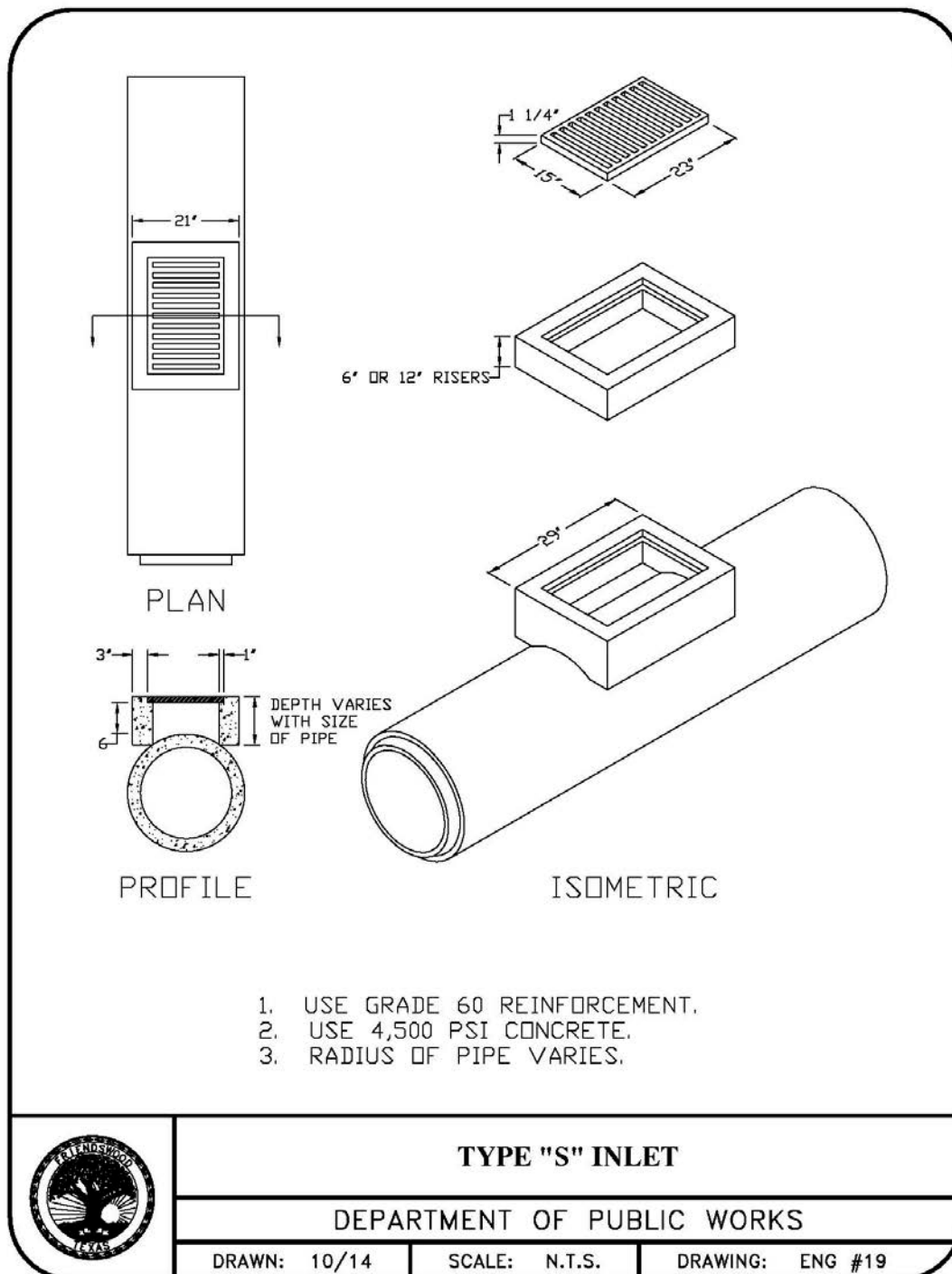
TYPE "A" INLET

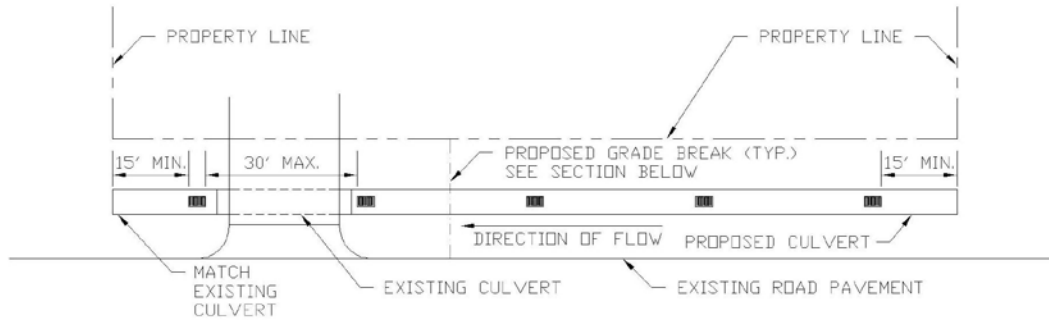
DEPARTMENT OF PUBLIC WORKS

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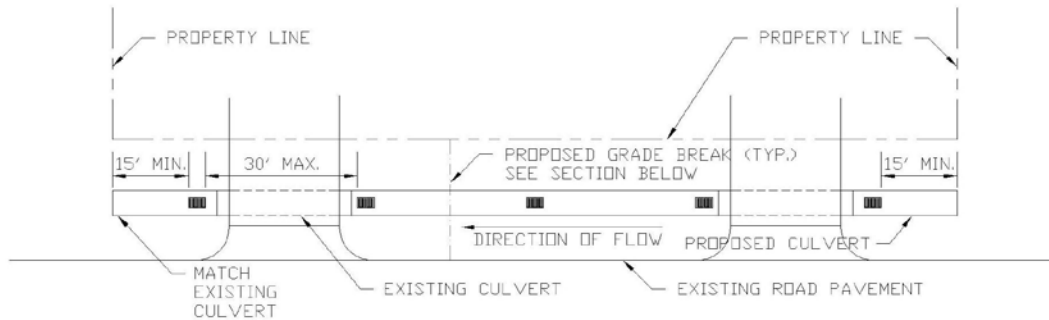
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DRAWING: B.S. #14

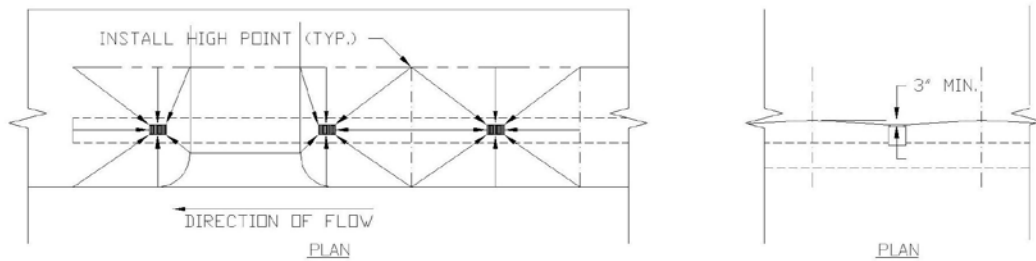




PLAN VIEW FOR SINGLE DRIVEWAY



PLAN VIEW FOR DOUBLE DRIVEWAY



DRAINAGE GRADING



**REQUIREMENTS FOR FILLING IN ROADSIDE
DITCHES IN RESIDENTIAL AREAS**

DEPARTMENT OF PUBLIC WORKS

DRAWN: 10/16

SCALE: N.T.S.

DRAWING: ENG #21

APPENDIX G

Traffic Control Sign Policy

TABLE OF CONTENTS

Attachments List	2
Purpose	3
Scope.....	3
Terms	4
Procedures.....	5
Traffic Concern Request Flow Chart.....	6
Specific Neighborhood Traffic Issues	7
No Parking/Parking Zone Implementation Requests.....	7
No Parking/Parking Zone Removal Requests.....	8
Commercial Truck Cut Through Traffic Mitigation Requests.....	9
Pedestrian Facility Requests	10
School Zone Safety Requests.....	11
Speed Control Requests	12
Intersection Control Requests (Multi-Way Stops, Traffic Signals, and Roundabouts)	13
“Children at Play” and “Deaf Child Area” Sign Requests	14
Other Advisory or Advanced Warning Sign Requests	14
Other Public Safety and Traffic Issue Requests	14

ATTACHMENTS:

A. No Parking and Parking Zones	15
B. Commercial Truck Cut-Through	18
C. Pedestrian Facilities	20
I. Pedestrian Safety	20
II. Pedestrian Crosswalks	21
III. Pedestrian Signals.....	23
D. School Traffic Safety	25
I. Around Schools	25
II. Around School Buses	26
E. Speed Limits	30
F. Intersection Controls.....	32
I. STOP signs	33
II. YIELD signs.....	34
III. Traffic Signal Installation.....	34
G. Children at Play Signs	36
H. Speed Humps, Bumps, and Lumps.....	37

PURPOSE

This policy establishes consistent procedures for addressing traffic-related concerns that may occasionally arise along roadways within or nearby residential areas in the city. Traffic concerns specifically addressed in this policy include the following:

- No Parking/Parking Zone Requests
- Cut Through Traffic Mitigation Requests
- Pedestrian Treatment Requests
- School Zone Safety Requests
- Speed Control Requests
- Intersection Control Requests (Multi-way Stops, Traffic Signals, and Roundabouts)
- “Children at Play” Sign Requests
- Other Advisory or Advanced Warning Sign Requests
- Other Public Safety and Traffic Issue Requests

Other traffic concerns not specifically addressed in this policy may be presented to staff for review by any citizen, Homeowners Association (HOA) business, or group. The Engineering staff will work with those parties to review their situation and formulate an appropriate response as necessary.

In accordance with the City of Friendswood Code of Ordinances Chapter 82 – Traffic and Vehicles and further stated in Ordinance 300, the Traffic Engineer or their designee, will be responsible for all traffic investigations in the City of Friendswood.

SCOPE

The City of Friendswood is committed to improving the quality of life within its City. When a request is made to review a traffic concern, the City’s direct efforts are to work and coordinate with the requesting party in understanding and addressing concerns in a defined area. The Engineering Division of the Department of Public Works (hereafter called “Engineering”) will inform the affected residents of any significant changes. This policy is applicable only to non-state routes.

The adoption of this policy is not intended and should not be construed to affect or waive the City’s immunity from damages under the Texas Tort Claims Act (CPRC Chapter 101) or any other law or ordinance. This policy does not require the City to install, remove, or modify any traffic control device, sign, signal, or warning device if the City has, in the absence of this policy, the discretion under State law to install, remove, or modify the traffic control device, sign, signal, or warning device. All investigations for traffic concerns and signage shall be investigated and warranted in compliance as outlined in the Texas Manual on Uniform Traffic Control Devices (TMUTCD), latest edition.

TERMS

City Traffic Director – The Duties of the City Traffic Director will be encompassed by the City Engineer. The City Manager will retain the final approval/disapproval authority over all decisions of the City Traffic Director.

Engineering Judgment – The evaluation of available pertinent information, and application of appropriate principles, provisions, and practices as contained in the TMUTCD (see below) and other sources, for the purpose of deciding upon the applicability, design, operation, or installation of a traffic control device. Engineering judgment shall be exercised by an engineer, licensed to practice engineering in the State of Texas, or by an individual working under the supervision of an engineer, through the application of procedures and criteria established by the engineer. Documentation of engineering judgement is not required.

HOA – Homeowners Association approved, recognized, and incorporated by law.

Ordinance 300 – The City of Friendswood Ordinance 300 grants the power to the City Traffic Director the authority to determine installation and proper timing and maintenance of traffic control devices, to conduct engineering analyses of traffic accidents to devise remedial measures, to conduct engineering investigations of traffic conditions, to plan the operation of traffic on the streets and highways of the City of Friendswood, and to cooperate with other officials in the development of ways and means to improve traffic conditions, and to carry out the additional powers and duties imposed by the ordinances of this City.

ROW – Right(s)-of-way, the area between property lines given the legal right by usage or grant, for traffic or pedestrian travel.

TMUTCD – Texas Manual on Uniform Traffic Control Devices. The TMUTCD is the authoritative manual on installation, implementation, and maintenance of all types of traffic control devices, both permanent and temporary, for the State of Texas.

Traffic Committee – The Traffic Committee is composed of employees of the City of Friendswood representing the Police Department, the Fire Marshal's Office, Department of Public Works Administration, and Public Works Engineering Division.

Traffic Study – A traffic study is the procedures and other investigations as described in the TMUTCD to determine if a warrant is necessary for a traffic concern.

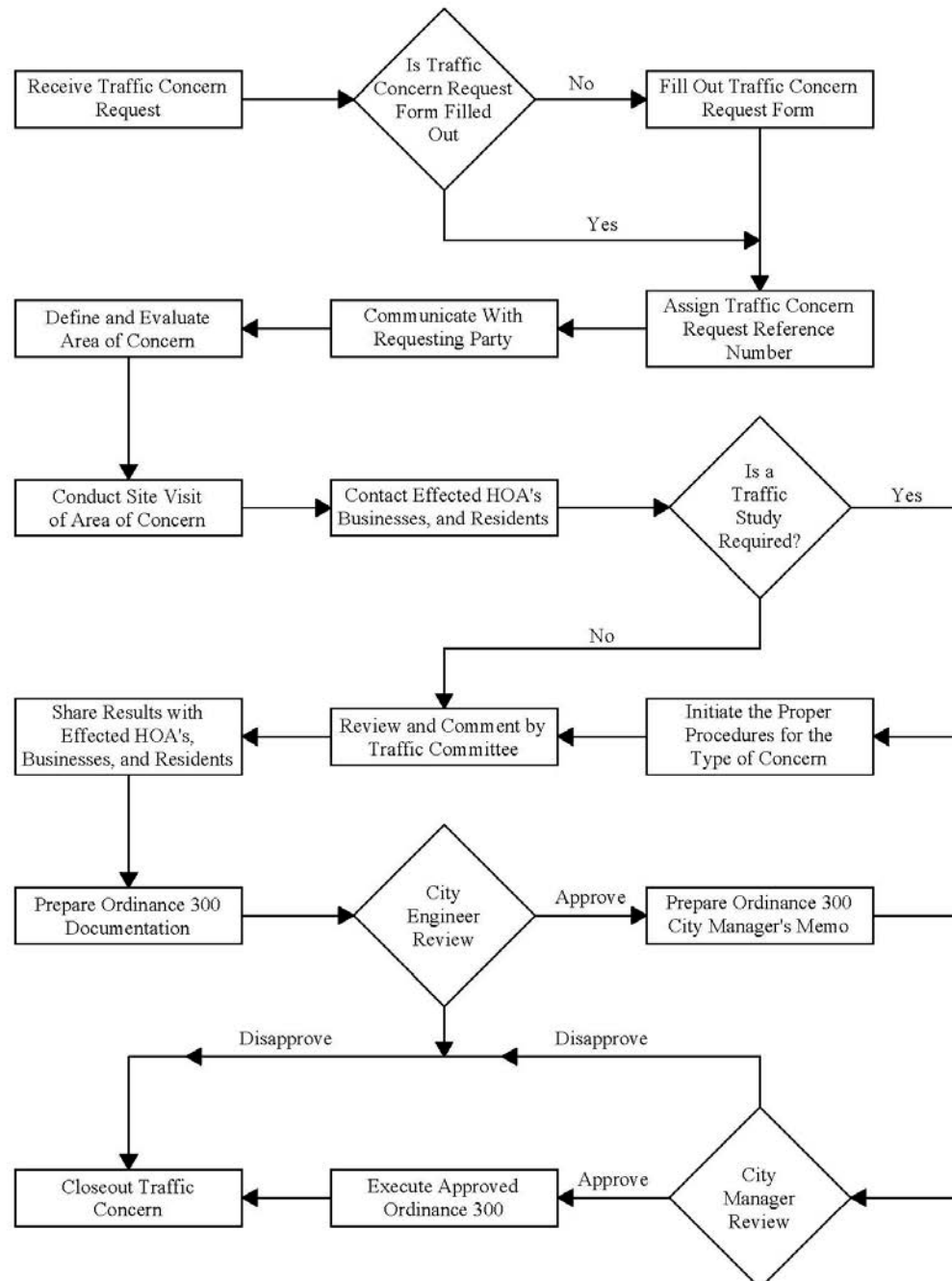
Warrant – a warrant describes the threshold condition based upon average or normal conditions that, if found to be satisfied as part of an engineering study, shall result in analysis of other traffic conditions or factors to determine whether a traffic control device or improvement is justified. Warrants are not a substitute for engineering judgement. The fact that a warrant for a particular traffic control devices is met is not conclusive justification for the installation of the device.

PROCEDURES

1. Residents, homeowners associations, or similar type groups may make a written request to Engineering requesting that a traffic concern be addressed. Traffic Concern request forms may be obtained from the City of Friendswood Engineering or downloaded at www.friendswood.com/publications.
2. The requesting party's issue will be entered in the Public Works Traffic database to search for similar requests in the subject area.
3. Staff will communicate with the requesting party to fully understand their request and thoroughly define the area of concern.
4. Engineering will identify the area of concern and define the area affected.
5. Engineering staff will evaluate the request, collect data if necessary to confirm the magnitude of the problem, and determine if further study is necessary.
6. If the Engineering staff determines that further study is necessary, procedures to address the specific traffic issue will be implemented. These procedures are detailed in the following portion of this policy, "Specific Traffic Concerns."
7. Should changes be warranted, Engineering will share the proposed changes with the impacted residents before any improvements are implemented.

A flow chart that graphically illustrates the above listed procedures is illustrated on the following page.

Traffic Concern Request Flow Chart



SPECIFIC TRAFFIC CONCERNS

Specific types of traffic requests in the City of Friendswood are addressed in this section of the policy.

No Parking/Parking Zone Implementation Requests

As with all requests to review traffic concerns in the City of Friendswood, requests for “No Parking”/“Parking” zone implementation will be addressed with the same measures outlined in the *Procedures* section of this policy.

- Engineering and the originator of the request will define a study area for property owners that may be impacted by a proposed “No Parking”/“Parking” zone.
- An engineering study will determine if a “No Parking”/“Parking” zone is appropriate for the requested area for twenty-four (24) hours per day or for specific days and/or time periods.
- In order to implement a “No Parking”/“Parking” zone, 100% of the property owners that are projected to be affected adjacent to their property must agree in writing to the “No Parking”/“Parking” zone implementation. The requestor will be required to obtain signatures from the owners.
- If deemed appropriate by an engineering study and agreed to by the property owners that will be affected adjacent to their property, “No Parking”/“Parking” signs will be posted by the entire street, block, or logical termination point as determined by Engineering. Other advisory or advanced warning signs will be placed as dictated by sound common engineering practices or the Texas Manual on Uniform Traffic Control devices, latest edition.
- All “No-Parking”/“Parking” zone applications shall be thoroughly reviewed by Engineering after a period of two (2) full years from the date of implementation. The “No-Parking”/“Parking” zone shall remain in effect unless a compelling safety reason is discovered.

As with all requests to review traffic concerns in the City of Friendswood, should the implementation of a “No Parking”/“Parking” zone in the study area be warranted, Traffic Engineering and Operations will share the proposed changes with the impacted residents before any modifications or improvements are implemented.

Additional information concerning no parking/parking zones is included in the **Attachment A** under the title *No Parking and Parking Zones*.

No Parking/“Parking” Zone Removal Requests

As with all requests to review traffic concerns in the City of Friendswood, requests for “No Parking”/“Parking” zone removal will be addressed with the same measures outlined in the *Procedures* section of this policy.

- An engineering study will determine if the removal of a “No Parking”/“Parking” zone is appropriate for the requested area. If appropriate, “No Parking”/“Parking” signs will be removed by the entire street, block, or logical termination point as determined by Engineering and the requesting party. Other advisory or advanced warning signs will be placed, or removed, as dictated by sound common engineering practice or the Texas Manual on Uniform Traffic Control devices, latest edition.

As with all requests to review traffic concerns in the City of Friendswood, should the removal of a “No Parking”/“Parking” zone in the study area be warranted, Engineering will share the proposed changes with the impacted residents before any modifications or improvements are implemented.

Additional information concerning no parking/parking zones is included in the **Attachment A** under the title *No Parking and Parking Zones*.

Commercial Truck Cut-Through Traffic Mitigation Requests:

As with all requests to review traffic concerns in the City of Friendswood, requests for commercial truck cut-through traffic mitigation control will be addressed with the same measures outlined in the *Procedures* section of this policy.

- An engineering study will determine the measures that are appropriate to address the specific commercial truck cut-through traffic mitigation concerns that may exist for the given the study area. In order to be considered a candidate for measures to reduce commercial truck cut-through traffic, a roadway must be a local roadway or a minor collector roadway with residential characteristics with a peak hour volume of over 375 vehicles in one direction with over 40% cut-through vehicles.
- To implement a plan which limits commercial truck cut-through traffic, 100% of the affected property owners must sign a petition as implemented through these policy guidelines.

As with all requests to review traffic concerns in the City of Friendswood, should changes to the study area to control commercial truck cut-through traffic in the study area be warranted, Engineering will share the proposed changes with the impacted residents before any modifications or improvements are implemented.

Additional information concerning commercial truck cut-through traffic is included in the **Attachment B** under the title *Commercial Truck Cut-Through Traffic Mitigation*.

Pedestrian Facility Requests:

As with all other requests to review traffic issues in the City of Friendswood, requests for pedestrian improvements will be addressed with the same measures outlined in the *Procedures* section of this policy.

- Engineering will study the requested location and perform a crosswalk analysis which includes volume of pedestrian traffic, proximity of the subject location to schools, parks, swimming pools, retail centers, hike and bike facilities, vehicular traffic volume, etc.
- The placement of a crosswalk at an uncontrolled intersection or in the middle of a block shall be considered only in rare cases. In general, the placement of a crosswalk at an uncontrolled intersection may create a false sense of security for pedestrians that could increase the likelihood of a vehicle-pedestrian incident.

As with all other requests to review traffic issues in the City of Friendswood, should pedestrian improvements be warranted, Engineering will share the proposed changes with the impacted residents before any modifications or improvements are implemented.

Additional information concerning pedestrian facilities is included in the **Attachment C** under the titles *Pedestrian Safety*, *Pedestrian Signals*, and *Installation of Marked Crosswalks*.

School Zone Safety Requests.

As with all other requests to review traffic issues in the City of Friendswood, requests for school zone safety will be addressed with the same measures outlined in the *Procedures* section of this policy. School zone safety requests encompass a broad range of requests in the vicinity of a school. Common requests in the City of Friendswood are addressed specifically below. Other requests will be addressed on a case per case basis.

- The traffic policy is not intended to replace or alter the existing provisions and ordinances established by the City of Friendswood.
- Reduced speed school zones are areas in which the speed limit is reduced for certain periods of the day that may be requested by individual citizens, communities, or schools. A traffic engineering study will determine if a reduced speed school zone is warranted based on the proximity of the roadway to the school, the type of school (elementary, junior high, senior high, etc.), vehicular volumes, pedestrian volumes, vehicular speeds, availability of sidewalks, alternative routes between the school residential areas served by the school, and other factors.
- Requests for a crosswalk in the vicinity of a school will be treated with the same procedures as outlined in the “Pedestrian Facility Requests” section of this policy. Proximity to schools and type of vehicular control are major factors in the consideration of crosswalks.
- Parking restrictions in the vicinity of a school will be treated with the same procedures as outlined in the “No Parking Zone Implementation” section of this policy. Proximity of schools is a major factor in the consideration of parking restrictions.
- No right-turn on red at signalized intersections in a school zone is a means to reduce the likelihood of conflicts between right-turn vehicles and school aged children in crosswalks. If appropriate, a traffic engineering study will determine the need for no right-turn on red restrictions based on vehicular volumes, pedestrian volumes, traffic signal timing, and other factors.
- The Texas Manual of Uniform Traffic Control Devices (latest edition) does not require the installation of flashing beacons to alert motorists to school zones. The City of Friendswood will consider the installation of school flashing beacons on arterial and collector roadways, but not on local streets.

As with all other requests to review traffic issues in the City of Friendswood, should changes to the conditions within a school zone be warranted, Traffic Engineering and Operations will share the proposed changes with the impacted residents before any modifications or improvements are implemented.

Additional information concerning school zone safety is included in the **Attachment D** under the titles *School Zones* and *School Traffic Safety*

Speed Control Requests.

As with all other requests to review traffic issues in the City of Friendswood, requests for speed control will be addressed with the same measures outlined in the *Procedures* section of this policy.

- Engineering will maintain a database of locations at which excessive vehicular speeds have been reported that will be shared with the Police Department for enforcement purposes.
- The Texas Manual of Uniform Traffic Control Devices (latest edition) states that a speed limit should be posted within 5 mph of the 85th percentile speed of the free-flowing traffic. Engineering Judgement is the overriding determination for all speed limit postings.
- The following alternatives are available to address speed control requests.
 - The Neighborhood Speed Watch Program is a public awareness program through which concerned citizens can take an active role in making neighborhood streets safer by observing and recording traffic speeds in their neighborhood. Additional information and application forms to participate in the Neighborhood Speed Watch Program may be obtained from Traffic Engineering and Operations, the Appendix of this policy, or downloaded at www.friendswood.com.
 - A speed feedback sign may be installed to alert motorists to their actual speed and the posted speed limit on a roadway. Additional information concerning the speed feedback sign is included in the Appendix of this policy.
 - A speed study may be conducted at the site. The speed study will determine the 85th percentile speed and consider other issues in the site vicinity including pedestrian traffic volume, roadway curvature, the frequency of traffic accidents, sight distance restrictions, and other issues specific to the study site. The speed study may determine that the posted speed limit at the study site is too low/high and may recommend that the posted speed be adjusted to within 5 mph of the 85th percentile speed.

As with all other requests to review traffic issues in the City of Friendswood, should changes to the speed control in the study area be warranted, Traffic Engineering and Operations will share the proposed changes with the impacted residents before any modifications or improvements are implemented.

Additional information concerning speed control is included in the **Attachment E** under the title *Speed Limits*.

Intersection Control Requests (Multi-way Stops, Traffic Signals, and Roundabouts):

As with all other requests to review traffic issues in the City of Friendswood, requests for intersection control will be addressed with the same measures outlined in the *Procedures* section of this policy.

- Multi-way stop signs or traffic signals shall not be installed within the corporate City limits of the City of Friendswood unless approved by an authorized warrant analysis and by the City Traffic Engineer.
- Multi-way stops and traffic signals are warranted based on vehicular traffic volumes, pedestrian traffic volumes, vehicular speeds, traffic accident data, and other traffic data in accordance with guidelines defined in the Texas Manual of Uniform Traffic Control Devices (TMUTCD).
- According to the TMUTCD, “regulatory and warning signs should be used conservatively because these signs, if used to excess, tend to lose their effectiveness.” If confirmed by a traffic engineering study, existing multi-way stop locations that are not warranted will be removed by the City of Friendswood.
- According to the TMUTCD, stop signs or traffic signals shall not be installed for the purpose of controlling the speed of a roadway as they have been shown to become a hazard at times when installed without warrant.
- Implementation of multi-way stop signs, traffic signal, and roundabouts will be in accordance with necessary budget considerations.

As with all other requests to review traffic issues in the City of Friendswood, should changes to the intersection control in the study area be warranted, Traffic Engineering and Operations will share the proposed changes with the impacted residents before any modifications or improvements are implemented.

Additional information concerning intersection control is included in the **Attachment F** under the titles *Stop Signs*, *Signal Installation*, and *Roundabouts*.

“Children at Play” and “Deaf Child Area” Sign Requests:

“Children at Play” and “Deaf Child Area” signs are not recognized by the State of Texas or by the Federal Highway Administration as official traffic control devices. These signs may create a false sense of security for parents of children and typically do not achieve the desired safety benefits.

The city does not recommend installing “Children at Play” signs within its boundaries. Existing “Children at Play” signs will be removed by the city that have previously been placed without proper authorization and are not in compliance with this sign policy.

“Deaf Child Area” signs may only be installed in school zones if deaf children attend the school. If installed, these signs will be removed when the deaf child no longer attends the school.

Additional information concerning children at play signs and deaf child area signs is included in the **Attachment G** under the title *Children at Play Signs*.

Other Advisory or Advanced Warning Sign Requests:

As with all other requests to review traffic issues in the City of Friendswood, requests for advisory or advanced warning signs will be addressed with the same measures outlined in the *Procedures* section of this policy.

- Traffic Engineering and Operations will study the requested location and perform an advisory/advanced warning sign analysis which includes volume of pedestrian traffic, proximity of the subject location to schools, parks, swimming pools, retail centers, hike and bike facilities, vehicular traffic volume, etc.
- The requesting party will be informed that it is City policy to only install advisory or advanced warning signs that are in accordance with the Texas Manual on Uniform Traffic Control devices, latest edition.

Other Public Safety and Traffic Issue Requests:

Other requests to review traffic issues in the City of Friendswood will be addressed with the same measures outlined in the *Procedures* section of this policy.

Traffic Engineering and Operations will share the proposed changes with the impacted residents before any modifications or improvements are implemented.

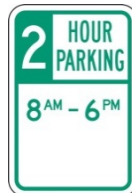
ATTACHMENT A No Parking and Parking Zones

Parking Zones:

Commercial Zones are designated for commercial vehicles to load and unload merchandise for up to 20 minutes. Yellow zones are usually found in commercial areas for the use of adjacent commercial areas.



Green Zones are used for limited term parking, usually 20 minutes as indicated on a sign. In any limited parking you can receive a citation if you exceed the maximum limit by 1 minute or more. To avoid a citation, you must vacate the parking space within the time limit specified and let other members of the public use these high demand spaces.



Red Zones indicate no parking at any time and are reserved for fire and emergency vehicles. Any other vehicle parked or encroaching on or in the red zone is considered a violation of the parking restriction and may receive a ticket and/or be towed.



Blue Zones are reserved parking spaces for vehicles used by disabled persons and displaying the appropriate disabled parking placard or license plate.



Where is it illegal to park?

- No Parking Zones marked by No Parking, No Stopping, or No Standing signs.
- In front of a private or public driveway.
- In front of or within 15 feet of a Fire Hydrant.
- Within marked or unmarked crosswalks. An unmarked crosswalk is considered to be an extension of sidewalk boundary lines across a street or driveway.
- On sidewalks.
- In public rights-of-way for the purpose of advertising or selling without proper authorization.
- In handicapped parking spaces without a legally obtained handicap placard or license plate.
- Where a vehicle will obstruct or block a handicapped parking space.
- Within 30' on the approach to a flashing signal, stop sign, yield sign, or traffic control signal located at the side of the roadway.
- Within 3' of a handicap access ramp.
- In stripped loading zones next to handicapped parking spaces.
- Straddling the markings or lines designating a parking stall.
- Along the curb return within 10' of an intersection.
- Within marked hatched no parking areas.
- Within 15' of the entrance to a fire or ambulance station.
- Within 500' of fire trucks or emergency equipment when these are stopped answering a fire alarm or emergency call.
- Other areas as designated in the Texas State Transportation Code section 545.302 which restricts parking even if no signs are posted.

Parking areas for persons with disabilities

Parking areas for persons with disabilities, also known as handicapped parking spaces are established for the exclusive use of vehicles transporting persons with disabilities. Any vehicle parked in a marked handicapped space or tow away zone parking space that does not display a placard or license plate with the international symbol of access can be given a ticket, towed, and impounded. Handicap spaces can be established on public or private property if the property owner and the City Engineer determine the need for such space/spaces.



A citizen with a valid handicap placard or license plate is allowed to park in a regular metered space without paying provided there are no other restrictions by signage. For example: *No Parking 7 – 9 AM or 4 – 6 PM*. However no one can park at meters in commercial loading/unloading zones unless they possess and have visibly displayed in the vehicle a commercial loading/unloading parking permit.

How close to the curb must I park?

All vehicles parking parallel to the curb must park within 18 inches. All vehicles parking at an angle must have 1 front tire within 6 inches of the curb. All parallel parking must have passenger side to curb, unless parked on a one-way street.

What is the maximum length of time I can park my vehicle on the street without moving it?

- Passenger vehicles cannot be parked on public streets for more than 48 hours.
- Trailer/Semi-Trailer cannot be parked on a public street for more than 2 hours.

ATTACHMENT B

Commercial Truck Cut-Through

Truck cut-through traffic trying to avoid congestion on major streets is a growing concern to city residents. Local and residential streets were not typically designed to carry high volume or heavy loaded through traffic. This unnecessary through traffic generates noise, air pollution, and creates other issues, including safety, for residents. Some trucks also try to park on narrow residential streets, which also causes concerns for the residents and emergency vehicles.

Residents concerned with high volumes of truck traffic traveling through, or parking in, their neighborhood have several remedies available. The City will evaluate the specific problems of your street and implement the most effective solution if the conditions warrant action.

Definitions of “Commercial Vehicle” and “Commercial Truck”

A commercial vehicle can be defined as any vehicle that is used and maintained for commercial purposes. A commercial truck is a commercial vehicle with more than 2 axles.

Cut-Through Traffic

Cut-through traffic can be defined as commercial vehicles passing through a neighborhood without at least 1 trip end (origin or destination) in that neighborhood. Cut-through traffic causes unwanted noise, dust, pollution, and safety issues for residents. Cut-traffic can be passenger vehicles, commercial vehicles, and/or commercial trucks. A cut-through commercial vehicle or truck is one that passes through a street/neighborhood without a scheduled stop in that neighborhood.

In additions to pollution and safety issues, cut-through commercial traffic cause pavement deterioration of the neighborhood roads since most neighborhood roads are not designed for heavy commercial traffic.

Cut-through traffic is also defined as motorized vehicles cutting through a parking lot and/or business to avoid heavy traffic or traffic control devices such as Stop/Yield Signs or traffic signals.

Possible Solutions

If your neighborhood has a high volume of cut-through traffic, you can request a traffic study by filling out the Traffic Concern form and sending it to the Engineering Division. Upon receiving a completed request form, the Engineering Division will make an initial determination of the need for a study as in outlined in the procedures of this policy. Counteractive measures such as signage and enforcement, or traffic calming measures may be instituted.

Parking in Residential Neighborhoods

Residential neighborhoods, which are in close proximity to busy commercial areas with limited parking facilities or near a truck parking facility/compound, may find unwanted vehicles parked in the neighborhood. Commercial Vehicles cannot be parked on a public street overnight and trailer/semi-trailer cannot be parked on a public street for more than 2 hours.



DRAFT

ATTACHMENT C **Pedestrian Facilities**

I. PEDESTRIAN SAFETY

The need for Pedestrian Safety:

Whether for school, work, or recreation, most of us walk every day. However, some people have to walk as their primary means of transportation or choose to walk to improve their health. Whatever our reasons may be for walking, pedestrians have a legitimate right to walk without feeling unsafe or uncomfortable. Since most of our roads were designed for vehicular traffic, we need to improve walkability in our communities and make them safer for walking.

Typical Issues with Pedestrian Safety

The first step in improving pedestrian safety involves identifying the problem. Residents can help identify the pedestrian safety concerns in their neighborhoods. The following lists some of the typical problems associated with pedestrian safety and can be used as a guide in identifying problems in a neighborhood.

Poor or Inadequate Walking Facilities

- Existing sidewalks and trails are insufficient and do not connect to schools, parks, churches, etc. Dirt paths or desire lines show that more sidewalks or paths are needed.
- Existing sidewalks are not wide enough for people to walk comfortably or pass each other.
- Sidewalk surfaces are uneven, broken, or covered with debris.
- Sidewalks and paths are blocked by barriers such as vehicles, trash cans, vegetation, utility poles, mail boxes, benches, or other obstructions.
- There is not enough space between the sidewalk and the roadway to make pedestrians feel comfortable.
- The intersections are wide and crossing distances are long. Turning radii at the intersections allow cars to turn at higher speeds.
- Bicyclists riding on the sidewalk (possibly because they do not feel safe in the street) cause conflicts with people walking.

Unsafe Driver Behaviors or Traffic Characteristics

- Drivers do not stop or yield to pedestrians crossing the roadway.
- Drivers drive too fast through neighborhoods, around schools, or near other places where people are walking.
- Drivers take short cuts through neighborhoods to avoid traffic on major roads.
- Red light or stop sign runners endanger pedestrians and bicyclists.
- Drivers pass other vehicles stopped at crosswalks for pedestrians or pass stopped school

buses.

- Drivers are more distracted than ever by cell phones, electronic media, passengers, and other activities.

Unsafe Pedestrian Behaviors

- Pedestrians do not look both ways before crossing the street.
- Pedestrians attempt to cross the street when traffic is approaching.
- Pedestrians cross against pedestrian signals.
- Pedestrians crossing midblock where there are no crosswalks.
- Pedestrians, like drivers, can be distracted by cell phones and other electronic devices.

Typical Solutions

Once the problem or problems have been identified, the next step is developing an appropriate solution. Pedestrian transportation improvements or potential solutions for pedestrian safety are described in terms of the “Four E’s”:

1. **Engineering** – Physical changes to infrastructure (i.e., sidewalks, traffic signals, signs, etc.) that affect the operation and movement of traffic and pedestrians.
2. **Education** – Includes strategies that aim to educate pedestrians, drivers, or other groups in order to motivate a change in behavior.
3. **Enforcement** – Community-based or law-agency-based measures to enforce laws and regulations related to pedestrians.
4. **Encouragement** – Efforts to promote walking and increase the level of walking in a community.

II. Pedestrian Crosswalks

Crosswalks

A crosswalk is typically defined as a designated portion of the roadway that pedestrians use to cross the street. A crosswalk may be marked or unmarked. There is no legal difference between marked and unmarked crosswalks at controlled intersections (those with stop signs or traffic signals). However, marked crosswalks at mid-block locations provide a designated and legal crossing zone for pedestrians.

1. Unmarked Crosswalks – most every intersection is considered to represent a crosswalk, even if it is not marked as such. An unmarked crosswalk is basically the extension of a sidewalk that extends across intersecting roads.
2. Marked Crosswalks – are those crosswalks marked with pavement markings,

usually 12' wide white pavement markings on 6' centers, either plain, perpendicular crosshatched, or 45 degree crosshatched.

3. Enhancements – are traffic control devices or signals that enhance and aids the safe movement of pedestrian traffic in the roadways.



Benefits of Marked Crosswalks

Marked crosswalks guide pedestrians to a proper crossing location and alert motorists of a pedestrian crossing point. However, at uncontrolled locations, marked crosswalks may create a false sense of security for pedestrians resulting in a greater number of pedestrian crashes (if additional safety treatments are not provided).

City Policy on Marked Crosswalks

The City's current policy is to install marked crosswalks at controlled intersections where there is a demonstrated need. Crosswalks are also marked at established school crossings. At other locations, an engineering study must be conducted to ensure that marked crosswalks are installed only where there is significant pedestrian activity and/or based on engineering judgment. The need for, and potential use of, a proposed crossing varies with each location, each should be considered individually, and with an effort to maintain consistency in the decision making process. Approval of marked intersection on state highways, or an intersection of a state highway and city road, within the City Limits shall be coordinated with TxDOT.

Categories of Marked Crosswalks

Marked crosswalk locations fit into 1 of 3 categories:

1. Marked crosswalks are **Standard** on signalized approaches at intersections.
2. Marked crosswalks alone (without other enhancements or treatments) are **Permitted** on roadways with posted or 85th percentile speeds less than or equal to 35 mph, if recommended as part of an engineering study and approved by the City Engineer.
3. Marked crosswalks with enhancements or active devices are installed on roadways with posted or 85th percentile speeds greater than 35 mph, if recommended as part of an engineering study and approved by the City Engineer. Such enhancements might include traffic calming features (i.e. median refuge

islands, curb extensions, narrowed travel lanes, traffic diverters, chicanes), illumination, or enhanced devices (i.e. advance signage), or active devices (i.e. pedestrian-activated signals).

III. Pedestrian Signals

Why do some traffic signals have push button and signal indications for pedestrians and others do not?

Pedestrian signals are primarily installed for 2 reasons:

1. A high volume of pedestrian traffic present; or
2. The green time given for vehicles in a particular direction is not sufficient for pedestrians to cross the roadway in that direction.

When signal indications for vehicles are easy to see and provide plenty of green time for pedestrians to cross safely, push buttons and pedestrian signal indications are often not needed. Push buttons are sometimes provided at intersections where the signal timing is typically controlled by the volume of vehicular traffic. If traffic volumes are low at these intersections, pedestrians will not have enough time to cross the street without push buttons. If pedestrian crossing times were factored into every signal cycle, many intersections would become inefficient and delay vehicles more than necessary. The use of pedestrian push button allows extra time to be provided only when a pedestrian is present.

What do pedestrian signals mean, and why isn't there enough time to cross the street during the walk indication on a pedestrian signal?

The City has in use the pedestrian signals that indicate illuminated symbols of a walking person and an upraised hand, along with a countdown timer of how many seconds of time until the pedestrian signal indicates "Do Not Cross". The signals are timed for an average walking distance of 4 feet per second.

- The steadily illuminated upraised hand indication means that a person should not enter the roadway in the direction of the signal.
- The walk symbol (the white colored walking person) means that a pedestrian may start crossing the road toward the signal.
- The flashing orange upraised hand means you can continue to cross, but there is not adequate time to begin crossing. The purpose of the flashing indication is to keep pedestrians from entering an intersection too late and to let pedestrians already in an intersection know that their time to finish crossing is becoming shorter, which is now indicated by the countdown timer.

Will pushing the pedestrian walk button several times make the signal change faster?

No, the walk button will send a message to the controller requesting a walk indication be granted to the requested direction in the next available signal cycle. Continuously pressing the pedestrian button does not send additional messages to the controller since the controller has already acknowledged the pressing of the walk button with the first push.

Why do vehicles keep turning even when the pedestrian signal indicates that pedestrians have the right to cross?

Pedestrian signals assign the right-of-way for pedestrians to cross the street. However, since right turns on red are allowed, some drivers may make right turns without yielding to pedestrians or do not see the pedestrian signals. This is why it is important to always be cautious when crossing busy intersections. The following suggestions are offered in the interest of safety:

- Always cross intersections defensively.
- When crossing the street, regardless of the availability of signals, cross as quickly as possible. Minimize your time in the roadway.
- Always watch for turning vehicles. You have the legal right to be there, but that does not protect you from the carelessness of some motorists.
- Whether marked or unmarked, or signalized **ALWAYS** look both ways before crossing the roadway.

ATTACHMENT D

School Traffic Safety

School Traffic Safety Statistics

On average, each year 23 school-age children die in school related traffic accidents in the United States. Out of these, 6 are occupants of school transportation and 17 are pedestrians. Based on these statistics, the City would like to stress the importance of pedestrian safety around schools and school buses. However, pedestrian safety is not solely dependent upon the pedestrians themselves but is very much dependent upon the driving practices of motorists near and around schools and school buses.

I. AROUND SCHOOLS

Pedestrian Safety Tips for Children

Most people, and especially young children, cannot judge the speed, distance, and size of oncoming vehicles. Parents should walk the route to school (or other destinations) with children and point out safe and unsafe practices. This includes locations where children may go to catch a bus.

- At a traffic signal, the green light or walk signal (the white walking person) means that children should stop at the curb or edge of the road, look both ways for oncoming traffic, and then if it is safe, cross the street. Having the walk indication or green light does not guarantee that cars will stop. Pedestrians must always look for oncoming and turning traffic even when they have the right of way.
- Before crossing the street, children may want to wait for a “fresh green light.” This means that they wait for the next new walk indication if the “don’t walk” indication (upright orange hand) is flashing and the countdown timer is nearing zero. Doing this gives them the most time to cross.
- If children are in the middle of the street and the “don’t walk” indication begins flashing, they should not stop or return to the curb or edge, but continue on to walk at their maximum comfortable pace until they reach the other side. They should not run as they might fall.
- And Remember;
 - Children crossing the street should be accompanied by an adult whenever possible.
 - Avoid crossing streets at mid-block, especially when parked vehicles may obstruct vision. Use stop signs, traffic signals, and crossing guards when available.
 - Children should not follow others or run to others when the call until a safe crossing is available.

Vehicle Safety Around Schools

Parents and other adults can do much to improve traffic safety around schools by driving cautiously, teaching children safe practices, and limiting vehicle trips. Drivers should obey all traffic laws and apply the following practices:

- Carpooling can reduce the number of vehicles near the school, especially during inclement weather.
- Avoid parking on the opposite side of the street from the school. When it is necessary, instruct children on how to safely reach the vehicle.
- Make sure that children are careful when opening vehicle doors and that they enter and exit on the curbside of the vehicle. Children should not be allowed to cross in the middle of the block to reach the vehicle.
- Drivers should not double park or block traffic. Waiting or parking in red zones is also not allowed.
- Do not block buses or use areas designated for buses only. If an emergency vehicle requires access, the area should be cleared.
- Never leave a vehicle unattended in a loading zone.
- Do not park in a crosswalk or pass a stopped vehicle allowing pedestrians to cross.
- Do not violate the law by using the excuse “I will just be here a minute” when picking up or dropping off children. Violations still present a danger and cause congestion during the time of day when it is most important to provide safety for children and avoid congestion.
- Learn the traffic patterns at and near a school to avoid being a disruption.
- Pay attention to children getting in and out of vehicles. Children sometimes forget to use the curb side door and exit suddenly.

Crossing Guards

The City is responsible for the assignment and designation of crossing guards for the schools within the City Limits. Crossing Guards are employees under the Police Department and have the force of law for traffic movements in school zones. Children and motorists should follow their directions when directing traffic and helping children crossing the street.

II. AROUND SCHOOL BUSES

School Bus Safety – Children

When waiting for, riding, and exiting the school bus, children should follow these rules:

Getting on the School Bus

- When waiting for the school bus, stay away from traffic and avoid roughhousing or other behavior that can lead to carelessness. Do not stray into streets, alleys, or private property.

- Line up away from the street or road as the school bus approaches.
- Wait until the bus has stopped and the door opens before stepping into the roadway.
- Use the handrail when stepping onto the bus.

Behavior on the Bus

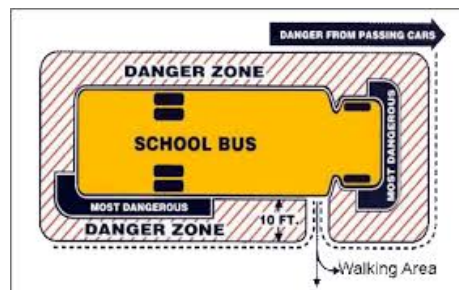
- When on the bus, find a seat and sit down. Loud talking or other noise can distract the bus driver and is not allowed.
- Never put head, arms, or hands out of the window, nor throw anything out of the window.
- Keep aisles clear. Books and bags are tripping hazards and can block the way in an emergency.
- Before you reach your stop, get ready to leave by getting your books and belongings together.
- At your stop, wait for the bus to come to a complete stop before getting up from your seat. Then, walk to the front door and exit using the hand rail.

Getting off the School Bus

- If you have to cross the street in front of the bus, walk at least 10 feet ahead of the bus along the side of the road, until you can turn around and see the bus driver.
- Make sure the bus driver can see you.
- Wait for a signal from the bus driver before beginning to cross.
- When the bus driver signals, walk across the road, keep an eye out for sudden traffic changes.
- Stay away from the bus's rear wheels at all times.

School Bus Safety – Parents

- If possible, accompany children to school bus stop and help them get in and out.
- Teach children to follow common sense practices and **ALWAYS STAY OUT OF THE DANGER ZONE OF THE BUS.**



School Bus Safety - Motorists

- When backing out of a driveway or leaving a garage, always watch out for children walking or bicycling to school.

- When driving in neighborhoods with school zones, watch out for young people who may be thinking about getting to school, but may not be thinking about getting there safely.
- Slow Down! Watch for children walking in the street, especially if there are no sidewalks in the neighborhood.
- Slow down! Watch for children playing in and congregating near bus stops.
- Be Alert! Children arriving late for the bus may dart into the street without looking for traffic.
- Learn to obey the school bus laws. Learn the “flashing signal light system” that school bus drivers use to alert motorists of pending actions:
 - **Yellow Flashing Lights** indicates that the bus is preparing to stop to load or unload children. Motorists should slow down and prepare to stop their vehicles. It also means that the motorist should NOT speed up to pass the bus before the red flashing lights are on.
 - **Red Flashing Lights** and extended stop arms and stop signs indicate that the bus has stopped, and that children are getting on or off. Motorists must adhere to the driving law below and only proceed when the red lights stop flashing and the extended stop sign and bar is withdrawn, and the bus begins moving before they can start driving again.
 - Two Lane roadways, with traffic in both directions, both traffic lanes shall stop.
 - Multi-lane roadways with or without center turn lanes, traffic shall stop in both directions.
 - Roadways divided by raised medians, the traffic traveling in the same directions as the bus shall stop. The traffic in oncoming direction on the other side of the median shall slow and proceed with caution, but it is also suggested that motorist stop for the ultimate safety.

School Zone Signs and Operations

School zones may be installed on streets that border school property line and where students cross a roadway. The signs can be static or include flashers. The flashers are usually installed on roadways with more than 5,000 vehicles per day. The signs conform to the standards and specifications in the Texas Manual on Uniform Traffic Control Devices.



School zone times shall be established and installed according to the following general guidelines:

- **Morning Times** – 45 minutes before start to 15 minutes after the start of school.
- **Midday** – beginning to end of lunch period.
- **Afternoon Times** – 15 minutes before dismissal to 30 minutes after dismissal of school.

These times may be adjusted at each school based on individual campus requirements.

Parking Regulations

In order to promote safe and efficient traffic circulation around a school, it may be necessary to regulate, restrict, or prohibit parking, stopping, or standing adjacent to the school grounds or at an established school crossing. The Department of Public Works will determine if the street needs parking restrictions.

Crosswalk Location and Installation

Crosswalks are located to enhance the utilization of sidewalks, to serve school routes and to define the appropriate crossing area in the street at high pedestrian volume intersections. When reviewing an area for installation of a crosswalk, the proximity to a school is one factor. Other factors include: volume of vehicular and pedestrian traffic, average vehicular speed, visibility available to motorist and pedestrians, type of traffic controls present, width of street to be crossed, and location of adjacent crosswalks.

ATTACHMENT E

Speed Limits

Authority

Speed limits are set by statute by the Texas Transportation Code § 545.352. The statute specifies the following speed limits:

- Streets in Urban Districts – 30 mph
- Alley in Urban Districts – 15 mph
- State or Federal numbered highways outside of Urban Districts – 70 mph. Any other highway outside of the Urban District – 60 mph.

These are known as “prima facie” limits and do not require signs for enforcement. For example, in the absence of any other speed limits sign, the speed limit is 30 mph in residential districts within the City Limits. The City Council may alter the maximum or prima facie speed limits based on an engineering and traffic study on any street or portion thereof within the City. The altered speed limits are posted regulatory speed limit signs (signs with black text on white background) and are considered prima facie (or legal) for enforcement.

Speed Zoning

When an engineering study determines that statutory speed limits are not appropriate for the existing road and traffic conditions, altered speed limits are established using speed zoning. The types of speed zones are:

- **Regulatory Speed Zones** impose a restriction on a particular roadway and indicators of the speed limitations imposed by physical and traffic conditions of the roadway. Regulatory speed limits are posted using regulatory speed limit signs which has black lettering on white background as shown in the Texas Manual on Uniform Traffic Control Devices for Streets and Highways (TMUTCD).
- **Construction Speed Zones** may be regulatory or advisory speed zones through a construction project depending on the importance of speed control in the construction zone. Construction advisory signs are typically black lettering on an orange background.
- **School Speed Zones** are established in accordance with city policy on School Zone Installation and Removal and in accordance with State Law. Maximum speed reduction allowed is 15 mph under the posted speed limit.
- **Advisory or Warning Speeds** are desirable speeds for curves, intersections, or other locations where design standards or physical conditions of the roadway restrict safe operating speeds to value less than the maximum legal speeds or posted regulatory speed limit. Advisory speed signs supplement other warning signs (such as for a curve) and have a black message on a yellow background.

What is the Law?

All drivers are required to obey the posted speed limits. These limits are designed to provide for the orderly flow of traffic under normal driving conditions. During periods of heavy traffic, inclement weather, low visibility, or other poor driving conditions, speed must be adjusted so that accidents will be avoided. In the absence of posted speed limits, prima facie speed limits are in effect. Any speed in excess of the legal speed limit on that roadway will be considered prima facie (or “on the face of it”) evidence that the speed is unreasonable, non-prudent, and unlawful.

How are Speed Limits Established?

Regulatory speed zones are established in accordance with the procedures described in the TxDOT manual “Procedures for Establishing Speed Zones”. Posted speed limits are set by the 85th percentile method, which represents the speed of the majority of drivers will be traveling at or below. Speed checks are conducted to determine the 85th percentile speed. The observed free-flowing speed for vehicles is tallied and the 85th percentile speed is calculated using collected data. To ensure a true reflection of normal traffic situation, speed checks are made on average weekdays during off-peak hours, under favorable weather conditions.

The speed limit is normally set at the nearest value to the 85th percentile speed ending in 5 or 0. The posted speed limit may be adjusted downwards of the 85th percentile speed based on the following factors:

- Roadway pavement width of 20 feet or less.
- Curves and hills.
- Hidden driveways and other developments.
- High number of driveways.
- Crash history.
- School crossings and characteristics of sites that generate traffic.
- Lack of striped, improved shoulders.

Once a speed limit is determined, the speed zone is added to the Ordinance 300 identifying the limits and speed of the speed limit zone. After approval by the City Manager, or their designee, the sign shop is instructed to install the necessary signs at the locations approved and shown in the Ordinance 300 memo.

Speed Limit Misconceptions

Studies have shown that there is no significant change in speeds following the posting of a revised speed limit. This is true whether the speed limit is increased or decreased. Safety is also not improved by establishing unreasonably low speeds limits. Some misconceptions about speed limits include:

- Reducing the speed limit will not slow the speed of traffic;
- Reducing speed limits will necessarily decrease the number of crashes and increase safety;
- Having a posted speed limit is not necessarily safer than an unposted speed limit; and
- Drivers always go 5 to 10 mph over the posted speed limit.

Why Do We Need Speed Limits?

Speed limits which are realistic and reasonable:

- Encourage compliance from a majority of the drivers;
- Give a clear reminder of reasonable and prudent speeds;
- Provide an effective enforcement tool to the police; and
- Encourage drivers to travel at the speed where the risk of crash involvement is the lowest.

Studies have shown crash rates are lowest at around the 85th percentile speed. Drivers traveling significantly faster OR slower than this speed are at greater risk for being in a crash. It is not high speeds alone that relate to crash risk; it is variation of speed within the traffic stream. In fact, on a per mile driven basis, high speed roadways, like interstates, have a lower speed-related fatality rate than low speed roadways because large variations in speed within the traffic stream create more conflicts and passing maneuvers (and opportunities for driver error and collisions).

However, unrealistic speed limits:

- Discourage voluntary compliance;
- Create perception of “speed traps;”
- Cause public antagonism toward the police;
- Create a bad image for a community in the eyes of non-residents; and
- May increase the potential for crashes.

ATTACHMENT F **Intersection Controls**

I. STOP SIGNS

Stop Signs

A STOP sign is a sign used to direct motorists to stop at the spot where the STOP sign is located. STOP signs are a method for controlling traffic at intersections where the normal application of the right-of-way rule is insufficient to ensure safety and provide reasonable compliance with the law. These signs are found on the right side of the roadway (and in some cases in the median to increase visibility). When more than two directions are controlled by STOP signs, then a supplemental ALL WAY plaque shall be used to inform motorists of the type of traffic control that exists at the intersection. If a STOP sign is in its correct location and it cannot be seen very well due to hills or curves, a STOP AHEAD warning sign may be used in advance on the approach to the STOP sign.

Installation Policy

STOP sign installations will be addressed according to the City of Friendswood Sign Policy, current edition. STOP signs at an intersection are installed only upon the approval of the City Engineer and reflected in the Ordinance 300, after a careful investigation has been made of existing conditions. The investigation is conducted using the guidelines for installing STOP signs provided in the Texas Manual on Uniform Traffic Control Devices (TMUTCD).

Should STOP Signs Be Used to Control Speeding in Neighborhoods?

This is a question that is frequently asked or requested from citizens concerned about speeding in their neighborhood. Although the City does share the concerns of the citizens about speeding and safety in residential neighborhoods, the installation of STOP signs is not the appropriate way to solve the problem of speeding. STOP signs are traffic control devices intended for assigning rights-of-way, not controlling speed. Traffic calming devices (as stated in the City's Traffic Calming Policy) and police enforcement have been found to be much more effective in controlling speeding.

STOP signs result in speed reduction only near the sign, and drivers tend to speed up between STOP sign controlled intersections to make up for perceived lost time. According to National Engineering Transportation Study, when required to stop by cross street traffic, 5% to 20% of all drivers come to a complete stop, 40% to 60% will come to a rolling stop below 5 mph, and 20% to 40% will pass through at higher speeds.

Often, unjustified STOP signs are ignored by motorists, which can be more dangerous than speeding. Therefore, it is the City's policy not to install STOP signs to control speeding.

Adverse Impacts of Unjustified STOP Signs:

- Unjustified STOP signs cause motorists frustration when they are forced to stop for no

apparent reason. Unwarranted STOP signs result in disrespect for all signs and reduce the effectiveness of STOP signs at other intersections where they are essential for safety.

- Vehicle emissions account for much pollution in the air. These emissions increase when vehicles are accelerated and decelerated. It is important to minimize unnecessary stops since steady speeds increase fuel economy and reduce vehicle emissions. Unwarranted STOP signs increase the number of unnecessary stops and reduce the efficiency of our transportation system which results in increased air pollution.

II. YIELD SIGNS

Yield Signs

At intersections where a full stop is not necessary at all times, consideration should be first given to less restrictive measures such as a YIELD. A YIELD sign is used to assign rights-of-ways on certain approaches to an intersection. Vehicle controlled by a YIELD sign need to slow down to a speed that is reasonable for the existing conditions or stop when necessary to avoid interfering with conflicting traffic.

Installation Policy

YIELD sign installations will be addressed according to the City of Friendswood Sign Policy, current edition. YIELD signs at an intersection are installed only upon the approval of the City Engineer and reflected in the Ordinance 300, after a careful investigation has been made of existing conditions. The investigation is conducted using the guidelines for installing YIELD signs provided in the Texas Manual on Uniform Traffic Control Devices (TMUTCD).

III. TRAFFIC SIGNAL INSTALLATION

Purpose

When warranted, properly designed, located, and operated, traffic control signals can provide orderly movement of vehicular and pedestrian traffic, can reduce the frequency and severity of certain types of crashes, and can increase the traffic handling capacity of the intersection. These benefits have perpetuated a common belief that traffic signals provide the solution to all traffic problems at intersections.

However, when unwarranted and improperly designed, traffic signals cause excessive delays, driver frustration, disobedience, overuse of less adequate routes, and increased collisions. This is why the City of Friendswood looks at every intersection being considered for signalization very carefully to determine that a signal is indeed needed.

Signal installation requests, like all other requests for signage, starts with a traffic concern report to the Engineering Division of the Department of Public Works. There will be an initial review and determination as stated in the procedures in the City of Friendswood's Sign Policy. As is true with all warrant justifications, the same is true of Traffic Signals having to meet the analysis and standards in the Texas Manual on Uniform Traffic Control Devices (TMUTCD).

Construction, Operation, and Maintenance

Once the signal is approved for placement, plans are created for construction. Depending on the conditions at the intersection, it may require up to two years to recommend design, and construct a traffic signal. Once constructed, the traffic signal is maintained by either Texas Department of Transportation (TxDOT) for signals on highways and Farm-To-Market Roads, Harris County in Harris County or the City in Galveston County. If a traffic signal is malfunctioning, please notify the Police Department.

DRAFT

ATTACHMENT G **Children At Play Signs**

We Have a Lot of Small Children in Our Neighborhood; can we get a “Children at Play” sign?

The City of Friendswood often receives a lot of requests to install signs warning drivers of the possible presence of “Children at Play.” However, these signs may give a false sense of security and have been proven to be ineffective. In residential areas within the City, drivers should expect children to be present. Studies have shown that signs attempting to warn motorists of normal conditions do not achieve the desired safety benefits.

The City of Friendswood does not want to endorse that children can or should be allowed to play safely on or near streets. These signs are not warranted or part of the Texas Manual on Uniform Traffic Devices (TMUTCD). Current Children at Play signs exist in the city in residential areas, but will not be replaced if faded, stolen, or destroyed. However, the City does have in place a process wherein the HOA can petition for these types of signs to be put in their neighborhood in the rights-of-way. These will still need to follow the typical procedures for all other signage with the addition of the following:

- The HOA will have to submit minutes that this was approved at a general HOA meeting with advanced notification relayed to residents of the proposal to install these signs.
- There will need to be a plan establishing the locations of the signs to be installed.
- If approved by the HOA and the Traffic Committee, the HOA would have to purchase the signs, sign bases, and poles and bring them to the Department of Public Works. The Department of Public Works will install the signs at the agreed upon locations that have been approved.
- The signs would have to be added to the insurance policy of the HOA.
- As stated previously, stolen, damaged, or faded signs will not be replaced by the City.



ATTACHMENT H

Speed Bumps, Humps, and Lumps

Speed Bumps, Humps, and Lumps are traffic calming devices that use vertical deflection to slow vehicular traffic in order to improve safety conditions. Although their uses are effective in keeping vehicle speeds down, Engineering Studies have shown that drivers will increase their speed in between vertical speed traffic calming devices to make up for perceived lost time due to slowing down to negotiate the vertical device.

Speed Bumps

Speed Bumps are an abrupt raised area in the pavement surface, effective at controlling speeds on low volume private driveways and parking lots and have the following characteristics:

- Typically they are 3 to 6 inches in height with a travel lane width of 6 to 12 inches.
- Cause significant driver discomfort at typical residential speeds.
- Cause vehicles to slow at 5 mph or less at the bump.
- Considered an increased liability risk on public roads.
- Truck, Emergency Response, cargo, and bus passengers more likely to be affected.
- Maintenance headache.

Speed Humps

Speed Humps are a gradual raised area in the pavement surface and are typically for use in residential and low speed roadways, and have the following characteristics:

- They are typically 3 ½ inches in height with a travel length of 4 to 6 feet.
- Create a gentle rocking motion slowing most vehicles down to 15 to 20 mph, and 25 to 30 mph when properly spaced.
- They are typically painted to identify vertical change in the roadway.
- Need to be properly designed, marked, and signed according to standards in the TMUTCD.
- Effective at controlling speeds without creating accidents or imposing unreasonable or unacceptable safety risks.
- Either permanent bituminous ones or portable ones can be installed; there are pros and cons to each type.
- Can be utilized as a raised crosswalk as well.

Speed Lumps

Speed Lumps are relatively new and have the effect of slowing vehicles down as does a speed hump, but the main problem is that speed humps still cause ALL traffic to slow down. Speed lumps are a hybrid combination of speed bumps and humps. Speed lumps are in a nominal size and placed with a gap between them. This gap is spaced (normally 2 feet) so that emergency

vehicles, such as fire trucks and ambulances, which have a wider wheel base width, can easily transverse the gaps where normal vehicles cannot. Added to the safety issue is that the edges near the gaps are either parabolic or flat.

DRAFT

APPENDIX H

Streetlight Policy

I. SUMMARY:

The goal of this policy is to provide for effective procedures for review, approval, and installation of streetlighting throughout the City of Friendswood. This Policy will enforce requirements specifically targeting areas where existing lighting conditions are deemed to be insufficient for public safety and areas of new residential, commercial, and industrial development.

II. GENERAL:

Streetlight installation is intended as the basis for fixed lighting on all roadways. Careful considerations shall be taken in the making streets and roadways safe during hours of darkness. Certain criteria as shown in the Warranting section of this policy shall be a part of the evaluation process for the need of street lights. Streetlights are to be installed on City owned streets to illuminate the roadway. They are not to be installed on private streets, parking lots, or for security lighting. A street segment shall be in the City Limits in order to be eligible for street lights. All street lights are installed, owned, and maintained by Texas New Mexico Power Company (in Galveston County) or CenterPoint Energy (in Harris County). Once a street light is installed, the City shall pay the monthly operating and maintenance cost of the streetlight.

III. WARRANTING:

The Warranting Process that is used is based on the Transportation Association of Canada (TAC) Guide for Roadway Lighting (27) which was based on the Roadway Lighting Handbook published by the U.S. Department of Transportation. This Streetlight Warrant system is a conditional based and not observed based system. Factors that are taken into consideration are divided into four sections; 1) Geometric, 2) Operational, 3) Environmental, and 4) Collision. Each individual factor is rated from 1 to 5 in accordance with the parameters listed in the warranting worksheet. Each individual factor is weighted as a percentage of the whole, and on a point system of 0 to 100, the warranting condition must achieve a minimum of 60 points to warrant the installation of a streetlight, yet the City Engineer is the final authority of approval for a streetlight.

a. GEOMETRIC SECTION:

There are eight factors that are considered under the Geometric Section of the Streetlight Warrant Process:

- Total number of lanes including center turn lanes.

- Width of the lanes.
- Number of median openings per mile.
- Number of driveways and entrances per mile.
- Horizontal curve radius.
- Vertical grade.
- Sight distance.
- Parking.

b. OPERATIONAL SECTION:

There are five factors that are considered under the Operational Section of the Streetlight Warrant Process:

- Signalized intersections.
- Left turn lanes.
- Median width.
- Posted speed.
- Pedestrian activity.

c. ENVIRONMENTAL SECTION:

There are five factors that are considered under the Environmental Section of the Streetlight Warrant Process:

- Percentage of development adjacent to roadway.
- Area classification
- Distance from development to roadway.
- Ambient lighting.
- Raised median curb.

d. COLLISION SECTION:

There is only one factor in the Collision Section of the Streetlight Warrant Process. This is a Night-to-Day ratio of accidents occurring on the street that is being reviewed.

Lighting is warranted where a total point-score of 60 or more is achieved. Lighting of equal scores may be prioritized by also using the different sections in the Warrant Worksheet.

IV. NEW SUBDIVISION INSTALLATION

As per the approved Streetlight Policy for New Development approved by Friendswood City Council Action, the following shall apply:

- a. All subdivision plats shall include a provision for streetlighting using concrete poles.
- b. Streetlights shall be provided at all corners and intersections and, in addition, at two hundred fifty (250) foot intervals along residential streets. Additional lights may be required at the option of the City Engineer.
- c. Each streetlight shall be at least one hundred (100) watts on local and collector streets and two hundred fifty (250) on major thoroughfares.
- d. All necessary easements for streetlighting shall be shown on the final plat prior to final approval by the City of Friendswood and the Planning and Zoning Commission.
- e. The City shall authorize the installation of public streetlights after acceptance of the subdivision by the City for the contractor's one-year maintenance period.

V. PRIVATE SUBDIVISION INSTALLATION

- a. The Developer/Owner may install a private streetlight system in accordance with the standards outlined above, except that ornamental poles other than concrete may be used. Wood poles shall not be used in any new streetlighting system.
- b. The Developer/Owner shall be required to provide for the installation of this private streetlight system and also provide for its perpetual operation and maintenance,
- c. The Final Plat shall indicate that streetlighting is private and this shall also be labeled on all construction plans.

VI. EXISTING SUBDIVISION INSTALLATION

The City's franchise utilities Texas-New Mexico Power (in Galveston County) and CenterPoint Energy (in Harris County) have established programs for installing streetlights in the City. The City will evaluate all requests for streetlights within the guidelines of this policy and the warranting system.

a. STREETLIGHT POLE TYPES

In all cases, any pole to be installed shall match any existing poles already installed inside the subdivision.

- Wooden Poles – lights shall only be installed on existing wooden utility poles served by overhead distribution. The light shall be installed on the existing wooden pole. An additional wooden pole may be installed to

serve a specific need. Other than state previously, no wooden shall be used in areas where the power is distributed underground.

- Concrete Poles – shall be installed on other areas such as commercial/industrial/collector roads within the City Limits.
- Metal Poles – shall be used on all thoroughfare roads inside the City Limits.
- The exception to the above mentioned poles would be the streetlights required in the downtown district by the Design Criteria Manual.

b. STREETLIGHT SPACING AND PATTERN

- All intersections shall have a minimum of one (1) streetlight.
- Undivided roadways less than sixty (60) foot width from back of curb to back of curb shall stagger the streetlighting along both sides of the roadway.
- Undivided roadways greater than sixty (60) foot width from back of curb to back of curb shall pair the streetlighting along both sides of the roadway.
- Divided roadways shall be pair the streetlighting along both sides of the roadway or as an option approved by the City Engineer, substitute one (1) streetlight in the middle of the median/dividing device in lieu of two (2) along both inside lanes of the divided roadway.
- Spacing in rural areas that have large acreage lots may be extended to five hundred (500) foot spacing and staggered along both sides of the roadway.

c. STREETLIGHT COST

The cost of installing new or additional streetlighting would be absorbed by the City of Friendswood, however in the event that there is not available power on the roadway (either overhead or underground), the City would partner with the Homeowners Association or other responsible entity.

- In either case, the City would need to have a letter from the HOA or other entity approving the installation and location of the new streetlight.

- The HOA or other entity approving the installation would be required, if power is not available in the Right-Of-Way of the roadway, to purchase, provide, have surveyed, and recorded all necessary easements for the installation of said pole.

VII. STREETLIGHT REQUEST PROCEDURE

- a. Applicant completes a request form (Exhibit “A”) and submits to the Department of Public Works Engineering Division.
- b. Engineering Division informs approving authority of the request, and steps needed to complete the process.
- c. Engineering Division gathers information for Warranting Worksheet.
- d. Engineering draws Exhibits and forwards information to the City Engineer for review.
- e. After City Engineer Approves, Engineering Division requests that City Manager approve the installation of the streetlight and gives authorization to the appropriate franchise utility to install.
- f. The appropriate franchise utility reviews the streetlight request and conducts the installation (if approved) of the proposed streetlight within a designated time period.
- g. Engineering Division distributes confirmation letter to the applicant and approving authority giving an approximate date of installation.

VIII. LIGHTING PROBLEMS

All streetlights, poles, and wiring remain the property of the franchise utility. If the streetlight is not working properly, or are damaged please contact the appropriate franchise utility.

- a. Galveston County would be Texas New Mexico Power at (281) 996-0453.
- b. Harris County would be CenterPoint Energy at (713) 307-2222.

Please give the franchise utility the pole number (approximately six (6) feet above ground) facing the roadway. If one is not visible, get the address or distance from the nearest intersection.

If tree limbs are blocking the light, please call the Department of Public Works at (281) 996-3380.



City of Friendswood

Department of Public Works

Engineering Division

1306 Deepwood Drive
Friendswood, Texas 77546-4904

STREETLIGHT REQUEST FORM (FOR NEW STREETLIGHT INSTALLATION)

NOTE TO APPLICANT:

The City of Friendswood will consider approving the placement of a streetlight in a specific location if certain guidelines, conditions, and warrants are met.

Contact Information (to be completed by applicant)			
Name: _____		Email: _____	
Phone: _____		FAX: _____	
Street Address: _____			
City: _____		State: _____	Zip Code: _____
Request Information (to be completed by applicant)			
Location of Streetlight Request (i.e. pole #, intersection, address, other): _____ _____			
Reason and Nature of Request: _____ _____			
Please indicate how you prefer to be notified of the results of your application:			
Email _____	Phone _____	FAX _____	Mail _____

Signature of Applicant

Date of Submittal

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FRIENDSWOOD CITY COUNCIL AGENDA ITEM FORM

This form should be completed and forwarded to the City Manager's Office as soon as possible prior to the first date that the item is expected to be placed on the Friendswood City Council agenda.

Date requested for City Council consideration: February 4, 2019

Date Submitted: January 31, 2019

Dept. Clearances: Steven Rhea

Prepared by: Aubrey Harbin

Subject: Public Hearing Process Discussion

Originating Department: Community Development

City Attorney Review: Yes

Proceeding: Joint Work Session

Degree of importance: Critical ☐ Significant ☐ Elective ☐

Expenditure Required: Amount Budgeted:

Appropriation Required: Source of Funds:

FINANCE APPROVAL:

MK

Morad Kabiri
City Manager

SUMMARY / ORIGINATING CAUSE

There has been discussion over the past couple of years regarding the possibility of changing from the current Joint Public Hearing process to separate Public Hearings by the Planning and Zoning Commission and City Council.

A few changes have occurred since the decision to implement the current process.

- Up until 2012, City Council met twice a month, similar to Planning and Zoning, which allowed ordinances to move through the process more quickly; City Council now meets once a month.
- Prior to 2015, the City contracted legal services and multiple attorneys were able to attend both City Council and Planning and Zoning meetings when both were held on the same night. Now that we have a City Attorney on staff, she can only attend one meeting resulting in the Commission having no legal representative to attend their meetings upstairs.
- Often times, the Commissioners feel rushed to forward a recommendation back down to City Council so that consideration of an applicant's ordinance can take place that same night. If a recommendation is not forwarded that night, it delays an applicant until the next Council meeting (30 days).
- There have also been multiple instances of having to relocate a large number of residents from the Council Chambers to the second floor conference room. Disruption of the Council meeting and space constraints in the conference room upstairs are concerns.

IMMINENT CONSEQUENCES / BENEFIT TO COMMUNITY

Pros:

- Allows the presence of legal counsel.
- All meetings would be recorded and televised.
- Council Chambers provides a formal setting and accommodates more attendees.
- A regular scheduled meeting date is less confusing for applicants.
- A regular scheduled meeting date helps Commissioners and Staff with scheduling.
- Allows the Chairman to present the Commission's recommendation to City Council.

Cons:

- Increased time frame for applicants by an average of 25 days.*
- Requires staff and applicants to return on another meeting day.

*** Since this item was discussed with the P&Z, a suggestion was made to move P&Z's regular meetings or call a Special P&Z meeting to reduce the average delay to 5 to 7 days. Monday night's presentation will include this option for consideration/discussion.**

RECOMMENDATIONS

The Planning and Zoning Commissioners have discussed the options and feel that in the interest of providing a more consistent process for applicants and residents, the pros of having separate public hearings outweigh the cons.

ATTACHMENTS

[JPH vs PH Schedule](#)

[Pros and Cons of PH vs JPH](#)

[Joint Public Hearing Flow Chart](#)

[Separate Public Hearing Flow Chart](#)

[Local Government Code Chapter 212](#)

[City of Friendswood Appendix C Zoning Ordinance Section 15](#)

[City of Friendswood Code of Ordinances Chapter 70](#)

CURRENT SCHEDULE WITH JOINT PUBLIC HEARINGS

Submittal Deadline (Monday typically)	City Council Meeting Date (JPH and 1st Reading)	City Council Meeting Date (2nd reading)
December 3, 2018	January 14, 2019	February 4, 2019
December 31, 2018	February 4, 2019	March 4, 2019
January 28, 2019	March 4, 2019	April 1, 2019
February 25, 2019	April 1, 2019	May 6, 2019
April 1, 2019	May 6, 2019	June 3, 2019
April 29, 2019	June 3, 2019	July 1, 2019
May 24, 2019	July 1, 2019	August 5, 2019
July 1, 2019	August 5, 2019	September 9, 2019
August 5, 2019	September 9, 2019	October 7, 2019
August 30, 2019	October 7, 2019	November 4, 2019
September 30, 2019	November 4, 2019	December 2, 2019
October 28, 2019	December 2, 2019	January 6, 2020

Total Days

61

64

63

71

62

62

71

68

62

64

62

68

Average

65

PROPOSED SCHEDULE WITH SEPARATE PUBLIC HEARINGS

Submittal Deadline (Thursday typically)	P & Z Meeting Date (Public Hearing)	City Council Meeting Date (Public Hearing & 1st Reading)	City Council Meeting Date (2nd Reading)
November 1, 2018	December 6, 2018	January 14, 2019	February 4, 2019
December 6, 2018	January 3, 2019	February 4, 2019	March 4, 2019
January 3, 2019	February 7, 2019	March 4, 2019	April 1, 2019
February 7, 2019	March 7, 2019	April 1, 2019	May 6, 2019
March 7, 2019	April 4, 2019	May 6, 2019	June 3, 2019
April 4, 2019	May 2, 2019	June 3, 2019	July 1, 2019
May 2, 2019	June 6, 2019	July 1, 2019	August 5, 2019
June 6, 2019	July 4, 2019	August 5, 2019	September 9, 2019
July 4, 2019	August 1, 2019	September 9, 2019	October 7, 2019
August 1, 2019	September 5, 2019	October 7, 2019	November 4, 2019
September 5, 2019	October 3, 2019	November 4, 2019	December 2, 2019
October 3, 2019	November 7, 2019	December 2, 2019	January 6, 2020

Total Days

93

88

88

89

86

87

93

93

93

93

87

93

Average

90

Public Hearings Schedule

Recommendation: To hold two separate public hearings with the Planning and Zoning Commission and City Council instead of a single joint public hearing.

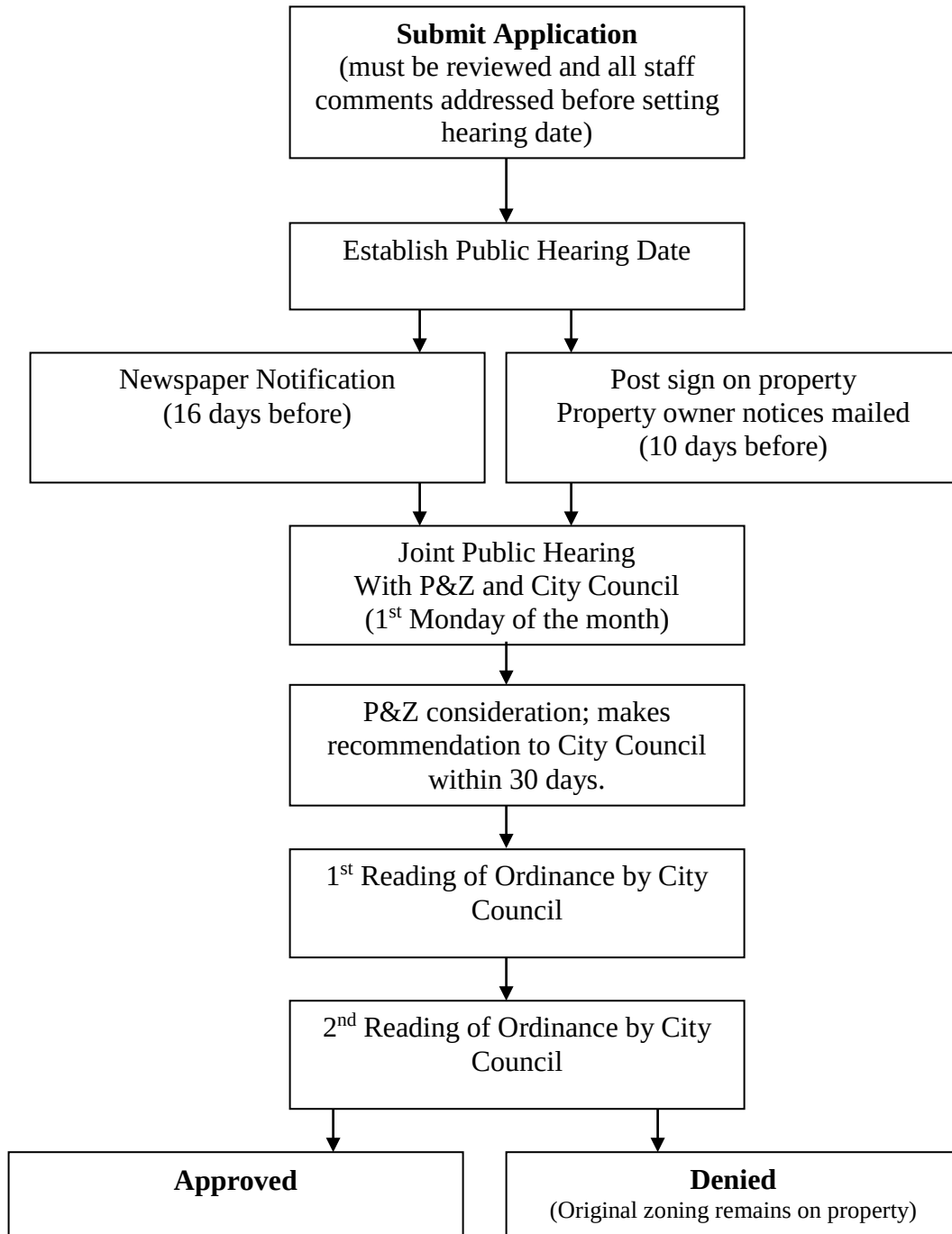
PROS	CONS
Allows the presence of legal counsel.	Increased time frame for applicants by an average of 23 days
All meetings would be recorded and televised.	Requires staff and applicants to return on a different day.
Council Chambers provides a formal setting and accommodates more attendees.	
A regular scheduled meeting date is less confusing for applicants.	
A regular scheduled meeting date helps Commissioners and Staff with scheduling.	
Allows the Chairman to present the Commission's recommendation to City Council.	

Data: Current time frame for projects averages 64 days. The proposed change would increase the time frame to an average of 87 days.

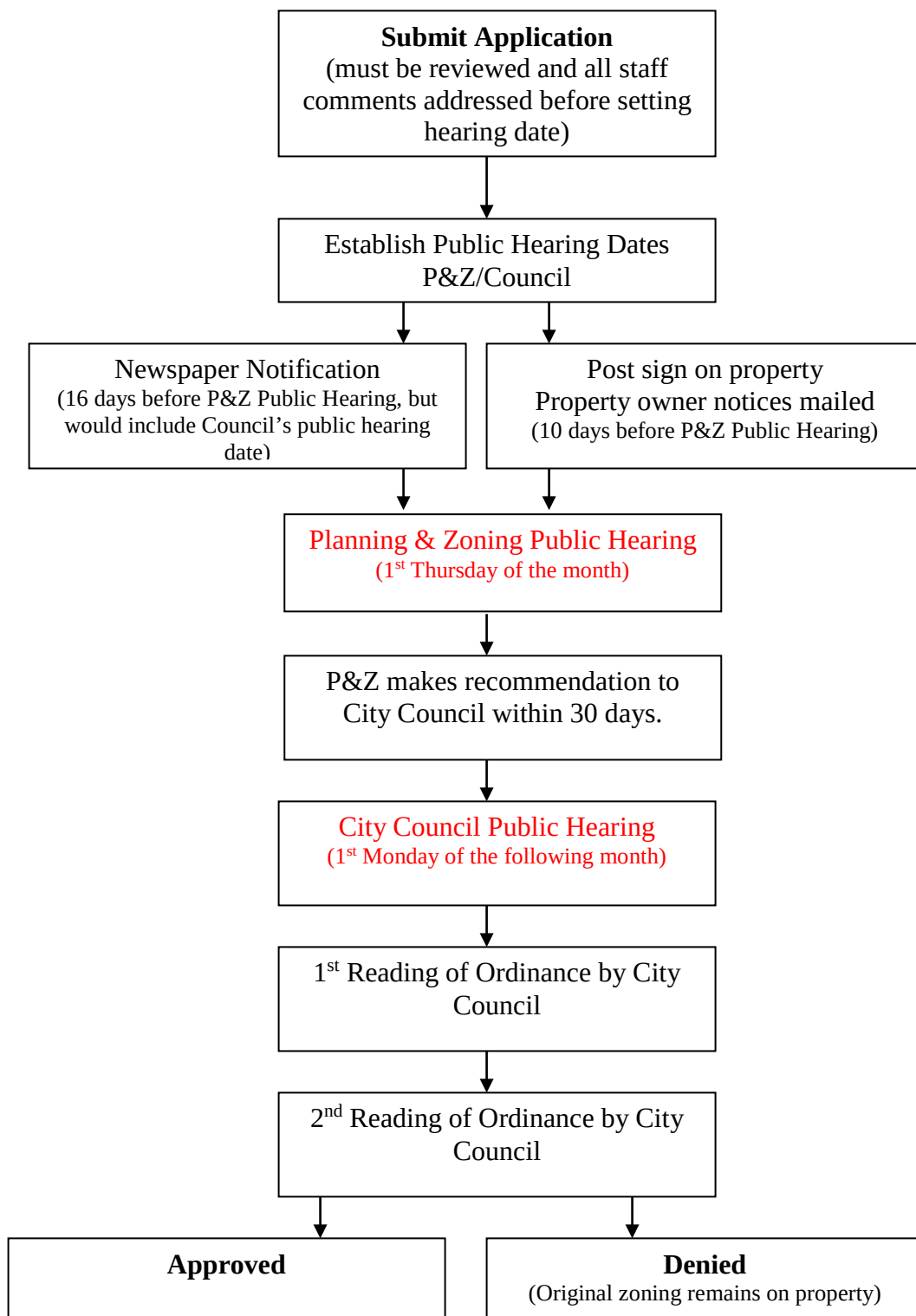
City	Joint Public Hearing	Council Meetings	PZ Meetings	Zone Change Process
League City	No	2 x Month	2 x Month	90-120 days
Pearland	Yes	2 x Month	2 x Month	90 days
Missouri City	No	2 x Month	1 x Month	60 days
Frisco	No	1 x Month	2 x Month	105 days
Webster	No	2 x Month	2 x Month	60 days
Friendswood	Yes	1 x Month	2 x Month	60-90 days

Conclusion: Based on data from surrounding cities, increasing the time frame for items that require public hearings is not overly burdensome to applicants. The Commission finds the pros outweigh the cons.

Zone Change Process – **Joint Public Hearing**



Zone Changes – **Separate Public Hearings**



LOCAL GOVERNMENT CODE

TITLE 7. REGULATION OF LAND USE, STRUCTURES, BUSINESSES, AND RELATED
ACTIVITIES

SUBTITLE A. MUNICIPAL REGULATORY AUTHORITY

CHAPTER 211. MUNICIPAL ZONING AUTHORITY

SUBCHAPTER A. GENERAL ZONING REGULATIONS

Sec. 211.001. PURPOSE. The powers granted under this subchapter are for the purpose of promoting the public health, safety, morals, or general welfare and protecting and preserving places and areas of historical, cultural, or architectural importance and significance.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987.

Sec. 211.002. ADOPTION OF REGULATION OR BOUNDARY INCLUDES AMENDMENT OR OTHER CHANGE. A reference in this subchapter to the adoption of a zoning regulation or a zoning district boundary includes the amendment, repeal, or other change of a regulation or boundary.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987.

Sec. 211.003. ZONING REGULATIONS GENERALLY. (a) The governing body of a municipality may regulate:

(1) the height, number of stories, and size of buildings and other structures;

(2) the percentage of a lot that may be occupied;

(3) the size of yards, courts, and other open spaces;

(4) population density;

(5) the location and use of buildings, other structures, and land for business, industrial, residential, or other purposes; and

(6) the pumping, extraction, and use of groundwater by persons other than retail public utilities, as defined by Section

[13.002](#), Water Code, for the purpose of preventing the use or contact with groundwater that presents an actual or potential threat to human health.

(b) In the case of designated places and areas of historical, cultural, or architectural importance and significance, the governing body of a municipality may regulate the construction, reconstruction, alteration, or razing of buildings and other structures.

(c) The governing body of a home-rule municipality may also regulate the bulk of buildings.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987. Amended by Acts 2003, 78th Leg., ch. 731, Sec. 2, eff. Sept. 1, 2003.

Sec. 211.0035. ZONING REGULATIONS AND DISTRICT BOUNDARIES APPLICABLE TO PAWNSHOPS. (a) In this section, "pawnshop" has the meaning assigned by Section [371.003](#), Finance Code.

(b) For the purposes of zoning regulation and determination of zoning district boundaries, the governing body of a municipality shall designate pawnshops that have been licensed to transact business by the Consumer Credit Commissioner under Chapter [371](#), Finance Code, as a permitted use in one or more zoning classifications.

(c) The governing body of a municipality may not impose a specific use permit requirement or any requirement similar in effect to a specific use permit requirement on a pawnshop that has been licensed to transact business by the Consumer Credit Commissioner under Chapter [371](#), Finance Code.

Added by Acts 1991, 72nd Leg., ch. 687, Sec. 18, eff. Sept. 1, 1991. Amended by Acts 1999, 76th Leg., ch. 62, Sec. 7.81, eff. Sept. 1, 1999.

Sec. 211.004. COMPLIANCE WITH COMPREHENSIVE PLAN. (a) Zoning regulations must be adopted in accordance with a comprehensive plan and must be designed to:

- (1) lessen congestion in the streets;
- (2) secure safety from fire, panic, and other dangers;
- (3) promote health and the general welfare;

- (4) provide adequate light and air;
- (5) prevent the overcrowding of land;
- (6) avoid undue concentration of population; or
- (7) facilitate the adequate provision of transportation, water, sewers, schools, parks, and other public requirements.

(b) Repealed by Acts 1997, 75th Leg., ch. 459, Sec. 2, eff. Sept. 1, 1997.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987. Amended by Acts 1989, 71st Leg., ch. 458, Sec. 1, eff. Aug. 28, 1989; Acts 1997, 75th Leg., ch. 459, Sec. 2, eff. Sept. 1, 1997.

Sec. 211.005. DISTRICTS. (a) The governing body of a municipality may divide the municipality into districts of a number, shape, and size the governing body considers best for carrying out this subchapter. Within each district, the governing body may regulate the erection, construction, reconstruction, alteration, repair, or use of buildings, other structures, or land.

(b) Zoning regulations must be uniform for each class or kind of building in a district, but the regulations may vary from district to district. The regulations shall be adopted with reasonable consideration, among other things, for the character of each district and its peculiar suitability for particular uses, with a view of conserving the value of buildings and encouraging the most appropriate use of land in the municipality.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987.

Sec. 211.006. PROCEDURES GOVERNING ADOPTION OF ZONING REGULATIONS AND DISTRICT BOUNDARIES. (a) The governing body of a municipality wishing to exercise the authority relating to zoning regulations and zoning district boundaries shall establish procedures for adopting and enforcing the regulations and boundaries. A regulation or boundary is not effective until after a public hearing on the matter at which parties in interest and citizens have an opportunity to be heard. Before the 15th day before the date of the hearing, notice of the time and place of the hearing must be

published in an official newspaper or a newspaper of general circulation in the municipality.

(b) In addition to the notice required by Subsection (a), a general-law municipality that does not have a zoning commission shall give notice of a proposed change in a zoning classification to each property owner who would be entitled to notice under Section 211.007(c) if the municipality had a zoning commission. That notice must be given in the same manner as required for notice to property owners under Section 211.007(c). The governing body may not adopt the proposed change until after the 30th day after the date the notice required by this subsection is given.

(c) If the governing body of a home-rule municipality conducts a hearing under Subsection (a), the governing body may, by a two-thirds vote, prescribe the type of notice to be given of the time and place of the public hearing. Notice requirements prescribed under this subsection are in addition to the publication of notice required by Subsection (a).

(d) If a proposed change to a regulation or boundary is protested in accordance with this subsection, the proposed change must receive, in order to take effect, the affirmative vote of at least three-fourths of all members of the governing body. The protest must be written and signed by the owners of at least 20 percent of either:

(1) the area of the lots or land covered by the proposed change; or

(2) the area of the lots or land immediately adjoining the area covered by the proposed change and extending 200 feet from that area.

(e) In computing the percentage of land area under Subsection (d), the area of streets and alleys shall be included.

(f) The governing body by ordinance may provide that the affirmative vote of at least three-fourths of all its members is required to overrule a recommendation of the municipality's zoning commission that a proposed change to a regulation or boundary be denied.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987.

Sec. 211.007. ZONING COMMISSION. (a) To exercise the powers authorized by this subchapter, the governing body of a home-rule municipality shall, and the governing body of a general-law municipality may, appoint a zoning commission. The commission shall recommend boundaries for the original zoning districts and appropriate zoning regulations for each district. If the municipality has a municipal planning commission at the time of implementation of this subchapter, the governing body may appoint that commission to serve as the zoning commission.

(b) The zoning commission shall make a preliminary report and hold public hearings on that report before submitting a final report to the governing body. The governing body may not hold a public hearing until it receives the final report of the zoning commission unless the governing body by ordinance provides that a public hearing is to be held, after the notice required by Section 211.006(a), jointly with a public hearing required to be held by the zoning commission. In either case, the governing body may not take action on the matter until it receives the final report of the zoning commission.

(c) Before the 10th day before the hearing date, written notice of each public hearing before the zoning commission on a proposed change in a zoning classification shall be sent to each owner, as indicated by the most recently approved municipal tax roll, of real property within 200 feet of the property on which the change in classification is proposed. The notice may be served by its deposit in the municipality, properly addressed with postage paid, in the United States mail. If the property within 200 feet of the property on which the change is proposed is located in territory annexed to the municipality and is not included on the most recently approved municipal tax roll, the notice shall be given in the manner provided by Section 211.006(a).

(c-1) Before the 10th day before the hearing date, written notice of each public hearing before the zoning commission on a proposed change in a zoning classification affecting residential or multifamily zoning shall be sent to each school district in which the property for which the change in classification is proposed is located. The notice may be served by its deposit in the

municipality, properly addressed with postage paid, in the United States mail.

(c-2) Subsection (c-1) does not apply to a municipality the majority of which is located in a county with a population of 100,000 or less, except that such a municipality must give notice under Subsection (c-1) to a school district that has territory in the municipality and requests the notice. For purposes of this subsection, if a school district makes a request for notice under Subsection (c-1), the municipality must give notice of each public hearing held following the request unless the school district requests that no further notices under Subsection (c-1) be given to the school district.

(d) The governing body of a home-rule municipality may, by a two-thirds vote, prescribe the type of notice to be given of the time and place of a public hearing held jointly by the governing body and the zoning commission. If notice requirements are prescribed under this subsection, the notice requirements prescribed by Subsections (b) and (c) and by Section [211.006\(a\)](#) do not apply.

(e) If a general-law municipality exercises zoning authority without the appointment of a zoning commission, any reference in a law to a municipal zoning commission or planning commission means the governing body of the municipality.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987.

Amended by:

Acts 2013, 83rd Leg., R.S., Ch. 640 (H.B. [674](#)), Sec. 1, eff. September 1, 2013.

Sec. 211.0075. COMPLIANCE WITH OPEN MEETINGS LAW. A board or commission established by an ordinance or resolution adopted by the governing body of a municipality to assist the governing body in developing an initial comprehensive zoning plan or initial zoning regulations for the municipality, or a committee of the board or commission that includes one or more members of the board or commission, is subject to Chapter [551](#), Government Code, regardless of whether the board, commission, or committee has rulemaking or quasi-judicial powers or functions only in an advisory capacity.

Added by Acts 1993, 73rd Leg., ch. 381, Sec. 1, eff. Aug. 30, 1993.
Amended by Acts 1995, 74th Leg., ch. 76, Sec. 5.95(82), eff. Sept. 1, 1995.

Sec. 211.008. BOARD OF ADJUSTMENT. (a) The governing body of a municipality may provide for the appointment of a board of adjustment. In the regulations adopted under this subchapter, the governing body may authorize the board of adjustment, in appropriate cases and subject to appropriate conditions and safeguards, to make special exceptions to the terms of the zoning ordinance that are consistent with the general purpose and intent of the ordinance and in accordance with any applicable rules contained in the ordinance.

(b) A board of adjustment must consist of at least five members to be appointed for terms of two years. The governing body must provide the procedure for appointment. The governing body may authorize each member of the governing body, including the mayor, to appoint one member to the board. The appointing authority may remove a board member for cause, as found by the appointing authority, on a written charge after a public hearing. A vacancy on the board shall be filled for the unexpired term.

(c) The governing body, by charter or ordinance, may provide for the appointment of alternate board members to serve in the absence of one or more regular members when requested to do so by the mayor or city manager. An alternate member serves for the same period as a regular member and is subject to removal in the same manner as a regular member. A vacancy among the alternate members is filled in the same manner as a vacancy among the regular members.

(d) Each case before the board of adjustment must be heard by at least 75 percent of the members.

(e) The board by majority vote shall adopt rules in accordance with any ordinance adopted under this subchapter. Meetings of the board are held at the call of the presiding officer and at other times as determined by the board. The presiding officer or acting presiding officer may administer oaths and compel the attendance of witnesses. All meetings of the board shall be open to the public.

(f) The board shall keep minutes of its proceedings that indicate the vote of each member on each question or the fact that a member is absent or fails to vote. The board shall keep records of

its examinations and other official actions. The minutes and records shall be filed immediately in the board's office and are public records.

(g) The governing body of a Type A general-law municipality by ordinance may grant the members of the governing body the authority to act as a board of adjustment under this chapter.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987. Amended by Acts 1993, 73rd Leg., ch. 126, Sec. 1, eff. Sept. 1, 1993; Acts 1995, 74th Leg., ch. 724, Sec. 1, eff. Aug. 28, 1995; Acts 1997, 75th Leg., ch. 363, Sec. 1, eff. Sept. 1, 1997.

Sec. 211.009. AUTHORITY OF BOARD. (a) The board of adjustment may:

(1) hear and decide an appeal that alleges error in an order, requirement, decision, or determination made by an administrative official in the enforcement of this subchapter or an ordinance adopted under this subchapter;

(2) hear and decide special exceptions to the terms of a zoning ordinance when the ordinance requires the board to do so;

(3) authorize in specific cases a variance from the terms of a zoning ordinance if the variance is not contrary to the public interest and, due to special conditions, a literal enforcement of the ordinance would result in unnecessary hardship, and so that the spirit of the ordinance is observed and substantial justice is done; and

(4) hear and decide other matters authorized by an ordinance adopted under this subchapter.

(b) In exercising its authority under Subsection (a)(1), the board may reverse or affirm, in whole or in part, or modify the administrative official's order, requirement, decision, or determination from which an appeal is taken and make the correct order, requirement, decision, or determination, and for that purpose the board has the same authority as the administrative official.

(c) The concurring vote of 75 percent of the members of the board is necessary to:

(1) reverse an order, requirement, decision, or determination of an administrative official;

- (2) decide in favor of an applicant on a matter on which the board is required to pass under a zoning ordinance; or
- (3) authorize a variation from the terms of a zoning ordinance.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987. Amended by Acts 1993, 73rd Leg., ch. 126, Sec. 2, eff. Sept. 1, 1993; Acts 1995, 74th Leg., ch. 724, Sec. 2, eff. Aug. 28, 1995.

Sec. 211.010. APPEAL TO BOARD. (a) Except as provided by Subsection (e), any of the following persons may appeal to the board of adjustment a decision made by an administrative official:

- (1) a person aggrieved by the decision; or
- (2) any officer, department, board, or bureau of the municipality affected by the decision.

(b) The appellant must file with the board and the official from whom the appeal is taken a notice of appeal specifying the grounds for the appeal. The appeal must be filed within a reasonable time as determined by the rules of the board. On receiving the notice, the official from whom the appeal is taken shall immediately transmit to the board all the papers constituting the record of the action that is appealed.

(c) An appeal stays all proceedings in furtherance of the action that is appealed unless the official from whom the appeal is taken certifies in writing to the board facts supporting the official's opinion that a stay would cause imminent peril to life or property. In that case, the proceedings may be stayed only by a restraining order granted by the board or a court of record on application, after notice to the official, if due cause is shown.

(d) The board shall set a reasonable time for the appeal hearing and shall give public notice of the hearing and due notice to the parties in interest. A party may appear at the appeal hearing in person or by agent or attorney. The board shall decide the appeal within a reasonable time.

(e) A member of the governing body of the municipality who serves on the board of adjustment under Section [211.008\(g\)](#) may not bring an appeal under this section.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987. Amended by Acts 1997, 75th Leg., ch. 363, Sec. 2, eff. Sept. 1, 1997.

Sec. 211.011. JUDICIAL REVIEW OF BOARD DECISION. (a) Any of the following persons may present to a district court, county court, or county court at law a verified petition stating that the decision of the board of adjustment is illegal in whole or in part and specifying the grounds of the illegality:

- (1) a person aggrieved by a decision of the board;
- (2) a taxpayer; or
- (3) an officer, department, board, or bureau of the municipality.

(b) The petition must be presented within 10 days after the date the decision is filed in the board's office.

(c) On the presentation of the petition, the court may grant a writ of certiorari directed to the board to review the board's decision. The writ must indicate the time by which the board's return must be made and served on the petitioner's attorney, which must be after 10 days and may be extended by the court. Granting of the writ does not stay the proceedings on the decision under appeal, but on application and after notice to the board the court may grant a restraining order if due cause is shown.

(d) The board's return must be verified and must concisely state any pertinent and material facts that show the grounds of the decision under appeal. The board is not required to return the original documents on which the board acted but may return certified or sworn copies of the documents or parts of the documents as required by the writ.

(e) If at the hearing the court determines that testimony is necessary for the proper disposition of the matter, it may take evidence or appoint a referee to take evidence as directed. The referee shall report the evidence to the court with the referee's findings of fact and conclusions of law. The referee's report constitutes a part of the proceedings on which the court shall make its decision.

(f) The court may reverse or affirm, in whole or in part, or modify the decision that is appealed. Costs may not be assessed against the board unless the court determines that the board acted

with gross negligence, in bad faith, or with malice in making its decision.

(g) The court may not apply a different standard of review to a decision of a board of adjustment that is composed of members of the governing body of the municipality under Section 211.008(g) than is applied to a decision of a board of adjustment that does not contain members of the governing body of a municipality.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987. Amended by Acts 1997, 75th Leg., ch. 363, Sec. 3, eff. Sept. 1, 1997; Acts 1999, 76th Leg., ch. 646, Sec. 1, eff. Aug. 30, 1999.

Sec. 211.012. ENFORCEMENT; PENALTY; REMEDIES. (a) The governing body of a municipality may adopt ordinances to enforce this subchapter or any ordinance or regulation adopted under this subchapter.

(b) A person commits an offense if the person violates this subchapter or an ordinance or regulation adopted under this subchapter. An offense under this subsection is a misdemeanor, punishable by fine, imprisonment, or both, as provided by the governing body. The governing body may also provide civil penalties for a violation.

(c) If a building or other structure is erected, constructed, reconstructed, altered, repaired, converted, or maintained or if a building, other structure, or land is used in violation of this subchapter or an ordinance or regulation adopted under this subchapter, the appropriate municipal authority, in addition to other remedies, may institute appropriate action to:

- (1) prevent the unlawful erection, construction, reconstruction, alteration, repair, conversion, maintenance, or use;
- (2) restrain, correct, or abate the violation;
- (3) prevent the occupancy of the building, structure, or land; or
- (4) prevent any illegal act, conduct, business, or use on or about the premises.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987.

Sec. 211.013. CONFLICT WITH OTHER LAWS; EXCEPTIONS. (a) If a zoning regulation adopted under this subchapter requires a greater width or size of a yard, court, or other open space, requires a lower building height or fewer number of stories for a building, requires a greater percentage of lot to be left unoccupied, or otherwise imposes higher standards than those required under another statute or local ordinance or regulation, the regulation adopted under this subchapter controls. If the other statute or local ordinance or regulation imposes higher standards, that statute, ordinance, or regulation controls.

(b) This subchapter does not authorize the governing body of a municipality to require the removal or destruction of property that exists at the time the governing body implements this subchapter and that is actually and necessarily used in a public service business.

(c) This subchapter does not apply to a building, other structure, or land under the control, administration, or jurisdiction of a state or federal agency.

(d) This subchapter applies to a privately owned building or other structure and privately owned land when leased to a state agency.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987. Amended by Acts 1999, 76th Leg., ch. 476, Sec. 1, eff. June 18, 1999.

Sec. 211.014. PANEL OF BOARD OF ADJUSTMENT. (a) This section applies only to a municipality with a population of 500,000 or more.

(b) A board of adjustment shall consist of one or more panels of at least five members each to be appointed for terms of two years. If more than one panel of the board is appointed, the board consists of the regular members of all of the panels. The board may adopt rules for the assignment of appeals to a panel.

(c) If the board consists of more than one panel, only one panel may hear, handle, or render a decision in a particular case. A decision of a panel of the board on a case constitutes the decision of the board.

(d) Meetings of a panel of the board are held at the call of the presiding officer of the panel and at other times as determined by the panel or the board.

(e) A panel of a board of adjustment:

(1) has the powers and duties that a board of adjustment has under Sections [211.008](#), [211.009](#), [211.010](#), and [211.011](#); and

(2) is to be treated as a board of adjustment for purposes of the requirement imposed by Section [211.008](#)(d).

Added by Acts 1993, 73rd Leg., ch. 126, Sec. 3, eff. Sept. 1, 1993.

Amended by Acts 2001, 77th Leg., ch. 402, Sec. 12, eff. Sept. 1, 2001; Acts 2001, 77th Leg., ch. 669, Sec. 73, eff. Sept. 1, 2001.

Amended by:

Acts 2005, 79th Leg., Ch. 24 (S.B. [177](#)), Sec. 1, eff. May 9, 2005.

Sec. 211.015. ZONING REFERENDUM IN HOME-RULE MUNICIPALITY. (a) Notwithstanding other requirements of this subchapter, the voters of a home-rule municipality may repeal the municipality's zoning regulations adopted under this subchapter by either:

(1) a charter election conducted under law; or

(2) on the initial adoption of zoning regulations by a municipality, the use of any referendum process that is authorized under the charter of the municipality for public protest of the adoption of an ordinance.

(b) Notwithstanding any procedural or other requirements of this chapter to the contrary, the governing body of a home-rule municipality may on its own motion submit the repeal of the municipality's zoning regulations, as adopted under this chapter, in their entirety to the electors by use of any process that is authorized under the charter of the municipality for a popular vote on the rejection or repeal of ordinances in general.

(c) The provisions of this chapter shall not be construed to prohibit the adoption or application of any charter provision of a home-rule municipality that requires a waiting period prior to the adoption of zoning regulations or the submission of the initial adoption of zoning regulations to a binding referendum election, or both, provided that all procedural requirements of this chapter for the adoption of the zoning regulation are otherwise complied with. This subsection does not apply to the adoption of airport zoning regulations under Chapter [241](#).

(d) Notwithstanding any charter provision to the contrary, a governing body of a municipality may adopt a zoning ordinance and condition its taking effect upon the ordinance receiving the approval of the electors at an election held for that purpose.

(e) The provisions of this section may only be utilized for the repeal of a municipality's zoning regulations in their entirety or for determinations of whether a municipality should initially adopt zoning regulations, except the governing body of a municipality may amend, modify, or repeal a zoning ordinance adopted, approved, or ratified at an election conducted pursuant to this section.

(f) The provisions of this section shall not authorize the repeal of:

(1) an ordinance approving land-use regulations adopted under the provisions of this chapter by a board of directors of a reinvestment zone under the authority of Section [311.010\(c\)](#), Tax Code; or

(2) an ordinance approving airport zoning regulations adopted under Chapter [241](#).

Added by Acts 1993, 73rd Leg., ch. 126, Sec. 4, eff. Sept. 1, 1993.

Amended by:

Acts 2007, 80th Leg., R.S., Ch. 190 (S.B. [1360](#)), Sec. 1, eff. May 23, 2007.

Sec. 211.016. ZONING REGULATION AFFECTING APPEARANCE OF BUILDINGS OR OPEN SPACE. (a) This section applies only to a zoning regulation that affects:

(1) the exterior appearance of a single-family house, including the type and amount of building materials; or

(2) the landscaping of a single-family residential lot, including the type and amount of plants or landscaping materials.

(b) A zoning regulation adopted after the approval of a residential subdivision plat does not apply to that subdivision until the second anniversary of the later of:

(1) the date the plat was approved; or

(2) the date the municipality accepts the subdivision improvements offered for public dedication.

(c) This section does not prevent a municipality from adopting or enforcing applicable building codes or prohibiting the use of building materials that have been proven to be inherently dangerous.

Added by Acts 2003, 78th Leg., ch. 524, Sec. 1, eff. Sept. 1, 2003.

Sec. 211.017. CONTINUATION OF LAND USE IN NEWLY INCORPORATED AREAS. (a) A municipality incorporated after September 1, 2003, may not prohibit a person from:

(1) continuing to use land in the area in the manner in which the land was being used on the date of incorporation if the land use was legal at that time; or

(2) beginning to use land in the area in the manner that was planned for the land before the 90th day before the effective date of the incorporation if:

(A) one or more licenses, certificates, permits, approvals, or other forms of authorization by a governmental entity were required by law for the planned land use; and

(B) a completed application for the initial authorization was filed with the governmental entity before the date of incorporation.

(b) For purposes of this section, a completed application is filed if the application includes all documents and other information designated as required by the governmental entity in a written notice to the applicant.

(c) This section does not prohibit a municipality from imposing:

(1) a regulation relating to the location of sexually oriented businesses, as that term is defined by Section [243.002](#);

(2) a municipal ordinance, regulation, or other requirement affecting colonias, as that term is defined by Section [2306.581](#), Government Code;

(3) a regulation relating to preventing imminent destruction of property or injury to persons;

(4) a regulation relating to public nuisances;

(5) a regulation relating to flood control;

(6) a regulation relating to the storage and use of hazardous substances;

(7) a regulation relating to the sale and use of fireworks;
or

(8) a regulation relating to the discharge of firearms.

(d) A municipal ordinance or rule in conflict with this section is void.

Added by Acts 2003, 78th Leg., ch. 279, Sec. 1, eff. Sept. 1, 2003.
Renumbered from Local Government Code, Section 211.016 by Acts 2005,
79th Leg., Ch. 728 (H.B. 2018), Sec. 23.001(66), eff. September 1,
2005.

Sec. 211.018. CONTINUATION OF LAND USE REGARDING MANUFACTURED HOME COMMUNITIES. (a) In this section, "manufactured home," "manufactured home community," and "manufactured home lot" have the meanings assigned by Section 94.001, Property Code.

(b) The governing body of a municipality may not require a change in the nonconforming use of any manufactured home lot within the boundaries of a manufactured home community if:

(1) the nonconforming use of the land constituting the manufactured home community is authorized by law; and

(2) at least 50 percent of the manufactured home lots in the manufactured home community are physically occupied by a manufactured home used as a residence.

(c) For purposes of Subsection (b), requiring a change in the nonconforming use includes:

(1) requiring the number of manufactured home lots designated as a nonconforming use to be decreased; and

(2) declaring that the nonconforming use of the manufactured home lots has been abandoned based on a period of continuous abandonment of use as a manufactured home lot of any lot for less than 12 months.

(d) A manufactured home owner may install a new or used manufactured home, regardless of the size, or any appurtenance on a manufactured home lot located in a manufactured home community for which a nonconforming use is authorized by law, provided that the manufactured home or appurtenance and the installation of the manufactured home or appurtenance comply with:

(1) nonconforming land use standards, including standards relating to separation and setback distances and lot size, applicable on the date the nonconforming use of the land constituting the manufactured home community was authorized by law; and

(2) all applicable state and federal law and standards in effect on the date of the installation of the manufactured home or appurtenance.

(e) A municipality that prohibits the construction of new single-family residences or the construction of additions to existing single-family residences on a site located in a designated floodplain may, notwithstanding Subsection (b), (c), or (d), prohibit the installation of a manufactured home in a manufactured home community on a manufactured home lot that is located in an equivalently designated floodplain.

Added by Acts 2017, 85th Leg., R.S., Ch. 741 (S.B. [1248](#)), Sec. 1, eff. September 1, 2017.

SUBCHAPTER B. ADDITIONAL ZONING REGULATIONS IN MUNICIPALITY WITH POPULATION OF MORE THAN 290,000

Sec. 211.021. ADDITIONAL ZONING REGULATIONS. (a) The governing body of a municipality with a population of more than 290,000 that has adopted a comprehensive zoning ordinance under Subchapter A may, by ordinance, divide the municipality into neighborhood zoning areas after a public hearing on the matter at which parties in interest and citizens have an opportunity to be heard. Before the 15th day before the date of the hearing, notice of the time and place of the hearing must be published in an official newspaper or a newspaper of general circulation in the municipality.

(b) The mayor of the municipality, with the approval of the governing body, may appoint a neighborhood advisory zoning council for each of the neighborhood zoning areas. Each zoning council must be composed of five citizens who reside in the neighborhood zoning area. A zoning council member is appointed for a term of two years.

(c) Each neighborhood advisory zoning council shall provide the zoning commission with information, advice, and recommendations relating to each application filed with the zoning commission for

zoning regulation changes that affect property within that neighborhood zoning area.

(d) On the filing of a zoning change application with the zoning commission, the zoning commission shall provide the appropriate neighborhood advisory zoning council with a copy of the application. The zoning council shall conduct a public hearing on the application and must publish notice of the time and place of the hearing in an official newspaper or a newspaper of general circulation in the municipality before the 10th day before the date of the hearing.

(e) At or before the zoning commission's hearing on the zoning change application, the neighborhood advisory zoning council shall submit to the zoning commission any information, advice, and recommendations relating to that application that the zoning council considers proper. The zoning commission may not overrule a recommendation of the zoning council with respect to the disposition of the application unless at least three-fourths of the members of the zoning commission who are present at the meeting vote to overrule the recommendation.

Acts 1987, 70th Leg., ch. 149, Sec. 1, eff. Sept. 1, 1987.

SUBCHAPTER C. REGULATION OF COTTAGE FOOD PRODUCTION OPERATIONS

Sec. 211.031. DEFINITIONS. In this subchapter, "cottage food production operation" and "home" have the meanings assigned by Section [437.001](#), Health and Safety Code.

Added by Acts 2013, 83rd Leg., R.S., Ch. 653 (H.B. [970](#)), Sec. 7, eff. September 1, 2013.

Sec. 211.032. CERTAIN ZONING REGULATIONS PROHIBITED. A municipal zoning ordinance may not prohibit the use of a home for cottage food production operations.

Added by Acts 2013, 83rd Leg., R.S., Ch. 653 (H.B. [970](#)), Sec. 7, eff. September 1, 2013.

Sec. 211.033. ACTION FOR NUISANCE OR OTHER TORT. This subchapter does not affect the right of a person to bring a cause of action under other law against an individual for nuisance or another tort arising out of the individual's use of the individual's home for cottage food production operations.

Added by Acts 2013, 83rd Leg., R.S., Ch. 653 (H.B. [970](#)), Sec. 7, eff. September 1, 2013.

Zoning Ordinance

Section 15. - Amendments.

- A. *Authority.* The city council may from time to time amend, supplement, or change by ordinance the boundaries of the district or the regulations herein established.
- B. *Submission to planning and zoning commission.* Before taking action on any proposed amendment, supplement or change by ordinance of a district boundary or regulation, the city council shall submit the proposed revision to the planning and zoning commission for its recommendation and report. The planning and zoning commission shall make its report within 30 days following the close of the public hearing thereon.
- C. *Public hearings.* Prior to adopting any ordinance amending, supplementing, or changing the boundaries of any district or any regulation herein established, the city council and the planning and zoning commission shall jointly hold a public hearing at which any person desiring to be heard regarding such matter shall be given an opportunity to do so. The final report by the planning and zoning commission, as required in subsection B. of this section 15, shall not be acted upon by such commission until the conclusion of such joint public hearing.
- D. *Notice of joint hearings.*
 - 1. Notice of any joint public hearing involving a proposed change in a zoning classification shall be given, in writing, to each owner of real property, as indicated by the most recently approved city tax roll, which lies within 200 feet of any property on which said change in classification is proposed, such notice to be given not less than ten days prior to the date on which such hearing is to be held.
 - 2. Notice of all joint public hearings shall also be published in the official newspaper of the city, or a newspaper having general circulation in the city, at least 15 days prior to the date on which such hearing is to be held.
 - 3. In addition, notice of any joint public hearing involving a proposed change in zoning classification shall be given by causing a sign to be erected on the property which would be affected by the proposed change stating the time and place of the hearing. Such sign shall be erected not less than ten days prior to the date on which such hearing is to be held.
 - 4. Before the tenth day before the hearing date, notice of any joint public hearing involving a proposed change in a zoning classification affecting residential or multifamily zoning shall be given, in writing via United States Postal Service, to each school district in which the property for which the proposed change in classification is located.
- E. *Vote required in the event of protest.* In the event of a written protest to any such proposed amendment, supplement, or change to a district boundary or regulation signed by the owners of 20 percent or more either of the area of the lots included in such proposed change those immediately adjacent to the area of the lots or land immediately adjoining the area covered by the proposed change and extending 200 feet from that area, such amendment shall not become effective except by the favorite vote of three-fourths of all members of city council.

Code of Ordinances

Sec. 70-25. - Vacation of street, drainage, utility or other public easement.

(a) The city council will provide for the vacation, abandonment or relocation of an existing road/street right-of-way, or any drainage, utility or other public easement, upon satisfaction of the following conditions:

- (1) A property owner whose property abuts a public easement or right-of-way, and is located within the corporate limits, makes application to the city requesting the vacation, in whole or in part, of the abutting public easement or right-of-way;
- (2) A completed application form is submitted to the community development department, identifying the entire limits or extent of the right-of-way/easement and the limits of the section to be abandoned, if different;
- (3) Such request and application shall be accompanied by an exhibit and a metes and bounds description of the vacated right-of-way which has been prepared by a registered professional land surveyor;
- (4) Written confirmation from all owners of real property abutting the easement, utility companies, drainage districts and/or other interested agencies stating they have been notified of the requested right-of-way vacation and a letter of "no objection" from each of the concerned entities.

(b) Upon receipt of all information, the city shall schedule a joint public hearing with the city council and the planning and zoning commission. The city shall provide written notice of such joint public hearing to each owner of real property, as indicated by the most recently approved city tax roll, whose property abuts or lies within 200 feet of the existing right-of-way/easement (in its entirety). At the public hearing, any person desiring to be heard regarding such a matter will be given an opportunity to do so. The following items are required by the city to hold a joint public hearing:

- (1) Application;
- (2) Metes and bounds description;
- (3) Title report;
- (4) Fees; and
- (5) Utility letters.

Notice of said hearing shall be given by publication one time in a paper of general circulation in the city stating the time and place of hearing which shall not be less than 15 days nor more than 30 days from the date of the public publication.

(c) After compliance with the above items, the joint public hearing shall be held. Within 30 days of the hearing, the planning and zoning commission shall make a recommendation to city council. The city council shall decide whether to grant or deny the request. If a vacation request is granted, an ordinance and quitclaim deed will be prepared (ordinances must be heard in accordance with the city Charter).

(d) When required by state law, an appraisal shall be made for an application for vacation of a public right-of-way. The applicant shall pay for all appraisal fees incurred. The appraisal shall be requested to determine the market value of the city's interest in the public right-of-way. No appraisal shall be required for an application for vacation of a public easement. The market value of the city's interest in a public easement is deemed to be zero.

(e) An application fee shall be required of each applicant seeking a vacation of any right-of-way. This fee shall be set by resolution and printed in Appendix D to this Code.



FRIENDSWOOD CITY COUNCIL AGENDA ITEM FORM

This form should be completed and forwarded to the City Manager's Office as soon as possible prior to the first date that the item is expected to be placed on the Friendswood City Council agenda.

Date requested for City Council consideration: February 4, 2019

Date Submitted: January 15, 2019

Dept. Clearances: Steven Rhea

Prepared by: Aubrey Harbin

Subject: Request to change the underlying zoning on the property from Single Family Residential (SFR) to Downtown District (DD)

Originating Department: Community Development

City Attorney Review: Yes

Proceeding: Joint Public Hearing

Degree of importance: Critical ☐ Significant ☒ Elective ☐

Expenditure Required:

Amount Budgeted:

Appropriation Required:

Source of Funds:

FINANCE APPROVAL:

MK

Morad Kabiri
City Manager

SUMMARY / ORIGINATING CAUSE

The property owner, currently Reach Church (formerly New Life Assembly of God), is requesting to change the underlying zoning on their property from Single Family Residential (SFR) to Downtown District (DD) in order to market and sell the property for commercial development. They would move the church to another location.

The Zoning Map indicated that there was Specific Use Permit (SUP) on the property to allow a Church; however, during staff research for the rezoning report, staff found that there is no documentation of a SUP ever being approved. If the zone change is approved and the church sells the property to a commercial developer, they will be required to develop the property in accordance with the DD zoning regulations. If another church purchased the property, they could continue the use as a non-conforming use. A Specific Use Permit (SUP) would be required for any expansion for the church use. It is our understanding that the property is currently under contract for purchase to convert the existing building into medical offices and build a retail center along Friendswood Link Rd.

IMMINENT CONSEQUENCES / BENEFIT TO COMMUNITY

The property is located within the Downtown District boundary which allows them to opt in to the DD zoning district. This property is also located in Area B of the Neighborhood Empowerment Zone (R2008-103), which waives fees for businesses and developers that are "for-profit," zoned Downtown District (DD), and that incorporate sidewalk or façade improvements into their overall development plan according to the Downtown District zoning guidelines. The requested change is also in compliance with the Future Land Use Map 2008.

RECOMMENDATIONS

The Planning and Zoning Commission will make a recommendation following the Joint Public Hearing.

ATTACHMENTS

[Application](#)

[Deeds](#)

[Metes and Bounds descriptions](#)

[Aerial Map](#)

[Location Map](#)

[Zoning Map](#)

[Rezoning Report](#)



City of Friendswood – Community Development

910 S. Friendswood Drive

Friendswood, TX 77546

Phone: 281-996-3201 Fax: 281-996-3260

www.ci.friendswood.tx.us

Zone Change Application

CURRENT ZONE OF PROPERTY: SFR

TYPE OF ZONE CHANGE (check one):

☒ Land Use Change to Zone: DD☐ Specific Use Permit Option 1☐ Planned Unit Development Option 1☐ Specific Use Permit Option 2☐ Planned Unit Development Option 2

SUP for Use(s) #: _____

PROPERTY IDENTIFICATION:

Address: 104 Whispering Pines

Platted Land – Plat Name: _____ Lot: _____ Block: _____

Unplatted Land – Attach a certified metes and bounds description

OWNER NAME: New Life Assembly of God Phone: 832-888-7235Owner's Mailing Address: P.O. Box 1014City: Friendswood State: TX Zip: 77549 Fax: _____Owner's Email Address: tracybarnett68@yahoo.comAGENT'S NAME: Donna Winfrey Phone: 713-377-6166Agent's Mailing Address: 1707 1/2 Post Oak Blvd #616City: Houston State: TX Zip: 77056 Fax: _____Agent's Email Address: donna @ winfreydevelopment.com

In authorizing an agent to represent the owner, the owner attests that his/her agent may make verbal or written representations and/or declarations on the owner's behalf and the owner understands and acknowledges that the City of Friendswood shall rely upon the agent's representations in matters pertaining to the above described property. The designation of an agent in this matter in no way absolves the owner of any of the owner's responsibilities outlined by the City of Friendswood. The owner must be the legal owner of record of the property at the time of submittal of the application.

The undersigned hereby request approval by the City Council on the above identified zone change.

Owner's Signature: Pastor Tracy Barnett Date: 12/22/2018Agent's Signature: Donna Winfrey Date: 12/27/2018

Received By: B Summers
 Date of Public Hearing: 2-4-19
 Property Owner Notices: 1-25-19

Application Number: PLAN-2018-003
 Received Date: 12-28-18
 Newspaper Notice: 1-14-19
 Sign on Property: 1-25-19

Submittal Requirements for Zone Change Applications

ALL APPLICATIONS - PUD and SUP Options 1 and 2, Land Use Changes

☒ Application Fee of \$300 (PUD \$500)

(Fee is waived for properties zoned DD or changing to DD zoning)

for profit only

☒ Current Deed of Record

☒ Most recent plat OR Certified Metes and Bounds Description (including name, address and telephone number of surveyor)

PUD Option 1

This option allows all plans, including the site plan, to be approved as a part of the zone change request and is a one-time submittal. See Zoning Ordinance Section 7.J. for more specific plan requirements.

5 – 24" x 36" sets of collated plans including a cover sheet, overall site plan, landscape plan, building elevations, and photometric plan

2 – 24" x 36" sets of collated plans including Engineered drainage, utility, grading and storm water plans (per the City of Friendswood Design Criteria Manual)

2 – 24" x 36" sets architectural plans including mechanical, electrical and plumbing plans

PUD Option 2

This option will require the applicant to apply for site plan approval from the Planning and Zoning Commission at a later date if the zone change to PUD is approved. At the time of site plan approval all information contained in the conceptual plan shall be certified by an engineer and/or surveyor.

5 – 24" x 36" sets of collated plans including a cover sheet or letter describing the project, an overall site plan and building elevations

See Zoning Ordinance Section 7.J. for more specific plan requirements.

Specific Use Permit Option 1

This option allows all plans, including the site plan, to be approved as a part of the SUP request and is a one-time submittal. See Zoning Ordinance Section 9.G.3. for more specific plan requirements.

5 – 24" x 36" sets of collated plans including a cover page, site plan, landscape plan, photometric plan, building elevations, tree survey and mitigation plan

2 – 24" x 36" sets of collated plans including Engineered drainage, utility, grading and storm water plans (per the City of Friendswood Design Criteria Manual)

2 – 24" x 36" sets architectural plans including mechanical, electrical and plumbing plans

Specific Use Permit Option 2

This option allows utility and drainage plans be submitted with the building permit application at a later date if the SUP is approved.

5 – 24" x 36" sets of collated plans including a cover sheet, site plan, landscape plan, photometric plan, building elevations, tree survey and mitigation plan

See Zoning Ordinance Section 9.G.3. for more specific plan requirements.

DEED
BOOK 2799 PAGE 666

101975

4850-A
Clear Lake
O. Moore

NOTICE

Prepared by the State Bar of Texas for use by Lawyers only.
To select the proper form, fill in blank spaces, strike out form provisions or insert
special terms constitutes the practice of law. No "standard form" can meet all
requirements.

WARRANTY DEED WITH VENDOR'S LIEN

THE STATE OF TEXAS

COUNTY OF GALVESTON

KNOW ALL MEN BY THESE PRESENTS:

That we, WILBERT L. BOYLE and MARIE BOYLE

of the County of Galveston and State of Texas for and

in consideration of the sum of Ten and no/100-----(\$10.00)-----DOLLARS

and other valuable consideration to the undersigned paid by the grantee herein named, the receipt of which is hereby acknowledged, and the further consideration of

the execution and delivery by the grantee of its one certain promissory note of even date herewith in the principal sum of Fifteen Thousand Dollars (\$15,000.00) payable to the order of Wilbert L. Boyle and Marie Boyle, at Friendswood, Galveston County, Texas, bearing interest from date thereof at the rate of 7% per annum, matured unpaid principal and interest to bear interest at the rate of 10% per annum from maturity until paid, principal and interest being due and payable in monthly installments of One-Hundred Seventy-Four and 16/100 Dollars (\$174.16) (or more) each, payable on the 15th day of each and every calendar month, beginning January 15, 1977, and continuing regularly thereafter until the whole of said sum, with interest, has been duly paid, interest being calculated on the unpaid principal to the date of each installment paid and the payment credited, first, to the discharge of the interest accrued and the balance to the reduction of principal, said note providing for acceleration of maturity in event of default and for 10% attorney's fees.

the payment of which note is secured by the vendor's lien herein retained, and is additionally secured by a deed of trust of even date herewith to JOHN M. NESHEIM Trustee,

have GRANTED, SOLD AND CONVEYED, and by these presents do GRANT, SELL AND CONVEY unto NEW LIFE ASSEMBLY OF GOD

of the County of Galveston and State of Texas, all of the following described real property in Galveston County, Texas, to-wit:

Being a tract of land containing 71,890 square feet of land or 1.6504 acres of land out of lot 4, block 11, town of Friendswood, in the J. R. Williams and Sara McKissick League, in Galveston County, Texas according to the map thereof recorded in Volume 6, Page 64 of the Galveston County Map Records; said tract being more and particularly described by metes and bounds as follows:

DEED
BOOK 2799 PAGE 667

Commencing in the Southeasterly corner of the above mentioned Lot 4, Block 11, Town of Friendswood;

Thence North 67° 30' 19" West a distance of 120.0 feet to an iron rod in the North right-of-way line of Whispering Pines (60 feet in width) to the place of beginning.

Thence North 67° 30' 19" West, along the North line of Whispering Pines a distance of 178.87 feet to the Southwest corner of the herein described tract of land;

Thence North 22° 29' 42" East, a distance of 250.00 feet to the Northwest corner of the herein described tract of land;

Thence South 67° 30' 19" East, along the North line of the herein described tract of land, a distance of 298.87 feet to the Northeast corner of the herein described tract of land; said corner lying in the East right-of-way line of Friendswood Link Road;

Thence South 22° 29' 42" West along the West line of Friendswood Link Road, a distance of 130.00 feet to the beginning of a curve the the right;

Thence in a Southwesterly direction along said curve whose radius is 120 feet, a distance of 188.50 feet to the end of said curve, said end of curve being in the North line of Whispering Pines, 60 feet wide, to the place of beginning, containing 1.6504 acres of land.

This is subject to all conditions, restrictions and easements of record.

TO HAVE AND TO HOLD the above described premises, together with all and singular the rights and appurtenances thereto in anywise belonging unto the said grantee, its heirs and assigns forever; and we do hereby bind ourselves, our heirs, executors and administrators to WARRANT AND FOREVER DEFEND all and singular the said premises unto the said grantee, its heirs and assigns, against every person whomsoever lawfully claiming or to claim the same or any part thereof.

But it is expressly agreed that the VENDOR'S LIEN, as well as the Superior Title in and to the above described premises, is retained against the above described property, premises and improvements until the above described note and all interest thereon are fully paid according to the face, tenor, effect and reading thereof, when this Deed shall become absolute.

In the event, however, said property should cease to be used for any purpose outlined in the Constitution and By-laws of the South Texas District of Assemblies of God, Inc. due to lack of membership or failure of organization or in the event the congregation should sever its affiliation with the Assembly of God organization, the herein property shall revert to and become the property of South Texas District Council of the Assemblies of God, Inc. in fee simple absolute.

EXECUTED

this

11th

day of

January

A. D. 1937

WILBERT L. BOYLE

x MARIE BOYLE

DEED
BOOK 2799 PAGE 668

(Acknowledgment)

THE STATE OF TEXAS
COUNTY OF HARRIS

Before me, the undersigned authority, on this day personally appeared

WILBERT L. BOYLE and MARIE BOYLE

known to me to be the person(s) whose name(s) is/are subscribed to the foregoing instrument, and acknowledged to me that the same executed the same for the purposes and consideration therein expressed.

Given under my hand and seal of office on this the

day of January, A. D. 1977
Notary Public in and for Harris County, Texas.

(Acknowledgment)

THE STATE OF TEXAS
COUNTY OF

Before me, the undersigned authority, on this day personally appeared

Known to me to be the person whose name subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and consideration therein expressed.

Given under my hand and seal of office on this the

day of

, A. D. 19

Notary Public in and for

County, Texas.

(Acknowledgment)

THE STATE OF TEXAS
COUNTY OF

Before me, the undersigned authority, on this day personally appeared

known to me to be the person whose name subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and consideration therein expressed.

Given under my hand and seal of office on this the

day of

, A. D. 19

Notary Public in and for

County, Texas.

(Corporate acknowledgment)

THE STATE OF TEXAS
COUNTY OF

Before me, the undersigned authority, on this day personally appeared

of

a corporation, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and consideration therein expressed, in the capacity therein stated and as the act and deed of said corporation.

Given under my hand and seal of office on this the

day of

, A. D. 19

Notary Public in and for

County, Texas.

DEC 07 1977
BOOK 2799 PAGE 669

101973

WARRANTY DEED
WITH VENDOR'S LIEN

WILBERT L. BOYLE and
MARIE BOYLE

TO

NEW LIFE ASSEMBLY OF GOD

PREPARED IN THE LAW OFFICE OF:

JOHN M. NESHEIM
1100 Nasa Rd. One, Suite 600
Houston, Texas 77058
333-4760

PLEASE RETURN TO:

*Shirley Jelle
400 Cyclops Rd.
Houston, TX 77058*

STATE OF TEXAS COUNTY OF GALVESTON
I hereby certify that this instrument was filed on the
date and time stamped herein by me and was duly recorded
in the volume and page of the record records of Galveston
County, Texas as stamped hereon.



FEB 1 1977

John M. Nesheim, Jr.
County Clerk

FILED FOR RECORD
FEB 1 11 19 AM 1977

John M. Nesheim, Jr.
COUNTY CLERK

8431602

Church copy

003-17-2026

THE STATE OF TEXAS X
COUNTY OF GALVESTON X KNOW ALL MEN BY THESE PRESENTS:

THAT RAY UTLEY, of the County of Galveston and State of Texas, for and in consideration of the sum of TEN DOLLARS (\$10.00) and other good and valuable consideration, the receipt of which is hereby acknowledged, has BARGAINED, SOLD, RELEASED, AND FOREVER QUITCLAIMED, and does by these presents BARGAIN, SELL, RELEASE, AND FOREVER QUITCLAIM unto New Life Assembly of God Church, 104 Whispering Pines, Friendswood, Texas 77546, hereinafter referred to as Grantee, all the following described property in Galveston County, Texas, to-wit:

FIELD NOTES ON A 30 FOOT WIDE STRIP OF LAND Out of a 60 foot Strip Formerly Called Friendswood Drive (Now Closed), and Out of Abstract 151, Galveston County, Texas, Said 60 foot Being Adjacent to a Triangular Parcel of Land Described in Book 3135, Page 530, of the Deed Records of Galveston County, Texas, and More Particularly Described by Metes and Bounds As Follows:

Commencing at the intersection of the northwesterly right-of-way of Whispering Pines (60 foot wide portion) with the northeasterly right-of-way of the old Friendswood Drive (Now Closed), said point being the most southerly corner of the property now occupied by the New Life Assembly of God Church;

Thence N. $47^{\circ} 22' 48''$ W. a distance of 20.0 feet to the PLACE OF BEGINNING of this 30 foot strip of land;

THENCE S. $42^{\circ} 02' 07''$ W. a distance of 30.00 feet to a point in the center line of the old Friendswood Drive for the most southerly corner of this tract being described;

THENCE N. $47^{\circ} 22' 48''$ W. along the former center line of the old Friendswood Drive a distance of 286.76 feet to a point for the most northwesterly corner of this tract being described;

THENCE N. $42^{\circ} 02' 07''$ E. a distance of 30.00 feet to a 1/2 inch iron rod for the most northerly corner of this tract being described;

THENCE S. $47^{\circ} 22' 48''$ E. along the former northeasterly right-of-way of old Friendswood Drive a distance of 286.76 feet to the PLACE OF BEGINNING, and containing 0.1975 Acres of Land.

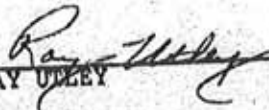
Prepared & Certified By:
COENCO, Inc.
Consulting Engineers

By: Malcolm A. Collins
Malcolm A. Collins, Registered
Professional Engineer and Public
Surveyor

003-17-2027

TO HAVE AND TO HOLD all of the above described premises, together with all and singular the rights, privileges and appurtenances thereto in anywise belonging unto Grantee, its successors and assigns, so that neither the Grantor nor any person or persons representing Grantor shall, at any time hereafter, have, claim, or demand any right or title to the aforesaid premises, or any part thereof.

IN WITNESS WHEREOF, this instrument is executed this 16 day of March, 1984.


RAY UTLEY

THE STATE OF TEXAS
COUNTY OF GALVESTON

003-17-2028

BEFORE ME, the undersigned authority, on this day personally appeared Ray Willey, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and consideration therein expressed.

Given under my hand and seal of office on this the 16 day of MARCH, 1984.

Billie A. Crutman
Notary Public in and for the State
of Texas

My Commission Expires: 1-20-87

FILED FOR RECORD
JUL 2 3 43 PM '84

Mary Jane Edrington
COUNTY CLERK, GALVESTON COUNTY, TEXAS

STATE OF TEXAS

COUNTY OF GALVESTON
I hereby certify that this instrument was filed on the date and time stamped herein by me and was duly recorded in the Official Public Records of Real Property of Galveston County, Texas, on

JUL 2 1984



Mary Jane Edrington
COUNTY CLERK, GALVESTON COUNTY, TEXAS

SHANKS SURVEYORSBilly L. Shanks
REGISTERED PUBLIC SURVEYOR840 Gemini, Suite 204
Houston, Texas 77062

488-8305

MAY 3, 1986

A 209 SQUARE FOOT TRACT OF LAND OUT OF LOT 4, BLOCK 11, FRIENDSWOOD, GALVESTON COUNTY, TEXAS, ACCORDING TO THE PLAT AS RECORDED IN VOLUME 238, PAGE 14 OF THE GALVESTON COUNTY CLERK'S RECORDS AND ALSO BEING PART OF FRIENDSWOOD DRIVE (NOW CLOSED):

COMMENCING AT THE SOUTH CORNER OF SAID LOT 4, BLOCK 11 AND ALSO BEING THE CENTERLINE INTERSECTION OF WHISPERING PINES (60' WIDE) AND FRIENDSWOOD DRIVE (60' WIDE AND NOW ABANDONED);

THENCE N 45° 00' 00" W 230.00 FEET ALONG THE SOUTHWEST LINE OF SAID LOT 4 (ALSO THE CENTERLINE OF FRIENDSWOOD DRIVE) TO THE POINT OF BEGINNING OF THIS TRACT;

THENCE CONTINUING N 45° 00' 00" W 6.76 FEET ALONG THE CENTERLINE OF FRIENDSWOOD DRIVE TO A 1/2" IRON ROD;

THENCE N 44° 49' 30" E 30.00 FEET TO A 1/2" IRON ROD IN THE NORTHEAST LINE OF SAID FRIENDSWOOD DRIVE;

THENCE S 45° 00' 00" E 6.76 FEET ALONG THE NORTHEAST LINE OF FRIENDSWOOD DRIVE TO A POINT IN THE NORTHWEST RIGHT-OF-WAY LINE OF WHISPERING PINES;

THENCE S 44° 49' 00" W 30.00 FEET TO THE POINT OF BEGINNING AND CONTAINING 209 SQUARE FEET OF LAND.



Billy L. Shanks

*not surveying
1.9/1/86*

SHANKS SURVEYORS

Billy L. Shanks
REGISTERED PUBLIC SURVEYOR

940 Gemini, Suite 204
Houston, Texas 77062

484-8305

MARCH 10, 1986

A 1.6442 ACRE TRACT OUT OF LOT 4, BLOCK 11, FRIENDSWOOD,
GALVESTON COUNTY, TEXAS, ACCORDING TO THE PLAT AS RECORDED
IN VOLUME 238, PAGE 14, GALVESTON COUNTY CLERK'S RECORDS:

COMMENCING AT THE SOUTH CORNER OF SAID LOT 4, BLOCK 11 AND BEING AT
THE CENTERLINE INTERSECTION OF WHISPERING PINES (60' WIDE) AND
FRIENDSWOOD DRIVE (60' WIDE BUT NOW CLOSED);

THENCE N 44° 49' 00" E 30.00 FEET ALONG THE SOUTHEAST LINE OF SAID LOT
4 (ALSO THE CENTERLINE OF WHISPERING PINES);

THENCE N 45° 00' 00" W 150.00 FEET TO AN IRON ROD IN THE NORTHEAST
RIGHT-OF-WAY LINE OF FRIENDSWOOD DRIVE (NOW CLOSED) AT THE POINT OF
BEGINNING OF THIS TRACT;

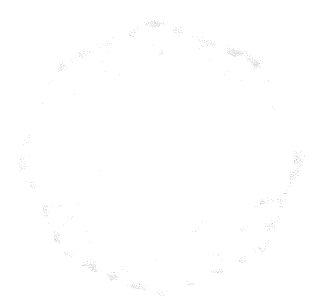
THENCE CONTINUING N 45° 00' 00" W 178.87 FEET ALONG THE NORTHWEST LINE
OF FRIENDSWOOD DRIVE (NOW CLOSED) TO A 5/8" IRON ROD;

THENCE N 44° 49' 00" E 250.00 FEET TO A 1/2" IRON ROD;

THENCE S 45° 00' 00" E 298.87 FEET TO A 1/2" IRON ROD IN THE NORTH-
WEST RIGHT-OF-WAY LINE OF WHISPERING PINES;

THENCE S 44° 49' 00" W 130.00 FEET ALONG THE NORTHWEST RIGHT-OF-WAY LINE
OF WHISPERING PINES TO AN IRON ROD;

THENCE IN A WESTERLY DIRECTION ALONG A CURVE TO THE RIGHT (OLD STREET
RIGHT-OF-WAY LINE AS PREVIOUSLY OCCUPIED) WITH A RADIUS OF 119.62
FEET, A CENTRAL ANGLE OF 90° 11' 00" , A LENGTH OF 183.28 FEET TO
THE POINT OF BEGINNING AND CONTAINING 71,623 SQUARE FEET OR 1.6442
ACRES OF LAND.



Billy L. Shanks

SHANKS SURVEYORS

Billy L. Shanks
REGISTERED PUBLIC SURVEYOR

940 Gemini, Suite 204
Houston, Texas 77062

488-8305

MARCH 10, 1986

A 0.1975 ACRE TRACT OF LAND OUT OF LOT 4, BLOCK 11, FRIENDSWOOD, GALVESTON COUNTY, TEXAS, ACCORDING TO THE PLAT AS RECORDED IN VOLUME 238, PAGE 14 OF THE GALVESTON COUNTY CLERK'S RECORDS AND ALSO BEING PART OF FRIENDSWOOD DRIVE (NOW CLOSED):

COMMENCING AT THE SOUTH CORNER OF SAID LOT 4, BLOCK 11 AND ALSO BEING THE CENTERLINE INTERSECTION OF WHISPERING PINES (60' WIDE) AND FRIENDSWOOD DRIVE (60' WIDE AND NOW ABANDONED);

THENCE N 45° 00' 00" W 50.00 FEET ALONG THE SOUTHWEST LINE OF SAID LOT 4 (ALSO THE CENTERLINE OF FRIENDSWOOD DRIVE) TO THE POINT OF BEGINNING OF THIS TRACT;

THENCE CONTINUING N 45° 00' 00" W 286.76 FEET ALONG THE CENTERLINE OF FRIENDSWOOD DRIVE TO A 1/2" IRON ROD;

THENCE N 44° 49' 00" E 30.00 FEET TO A 1/2" IRON ROD IN THE NORTH-EAST LINE OF SAID FRIENDSWOOD DRIVE;

THENCE S 45° 00' 00" E 286.76 FEET ALONG THE NORTHEAST LINE OF FRIENDSWOOD DRIVE TO A POINT IN THE NORTHWEST RIGHT-OF-WAY LINE OF WHISPERING PINES;

THENCE S 44° 49' 00" W 30.00 FEET ALONG THE NORTHWEST RIGHT-OF-WAY LINE OF WHISPERING PINES TO THE POINT OF BEGINNING AND CONTAINING 0.1975 ACRE OF LAND.



Billy L. Shanks

SHANKS SURVEYORS

Billy L. Shanks
REGISTERED PUBLIC SURVEYOR

640 Gemini, Suite 204
Houston, Texas 77062

403-8305

MARCH 10, 1986

A 3,094 SQUARE FOOT TRACT OF LAND OUT OF THE SOUTH CORNER OF LOT 4, BLOCK 11, FRIENDSWOOD, GALVESTON COUNTY, TEXAS, ACCORDING TO THE PLAT AS RECORDED IN VOLUME 238, PAGE 14 OF THE GALVESTON COUNTY CLERK'S RECORDS:

COMMENCING AT THE SOUTH CORNER OF SAID LOT 4, BLOCK 11 AND BEING AT THE CENTERLINE INTERSECTION OF WHISPERING PINES AND FRIENDSWOOD DRIVE (NOW CLOSED);

THENCE N 44° 49' 00" E 30.00 FEET ALONG THE SOUTHEAST LINE OF SAID LOT 4 (ALSO THE CENTERLINE OF WHISPERING PINES);

THENCE N 45° 00' 00" W 30.00 FEET TO THE POINT OF BEGINNING OF THE HEREIN DESCRIBED TRACT AND ALSO BEING THE INTERSECTION OF THE NORTH-WEST RIGHT-OF-WAY LINE OF WHISPERING PINES (60' WIDE) AND THE NORTH-EAST RIGHT-OF-WAY LINE OF FRIENDSWOOD DRIVE (60' WIDE BUT NOW CLOSED);

THENCE N 45° 00' 00" W 120.00 FEET ALONG THE NORTHEAST LINE OF ABANDONED FRIENDSWOOD DRIVE TO AN IRON ROD;

THENCE IN AN EASTERLY DIRECTION ALONG A CURVE TO THE LEFT WITH A RADIUS OF 119.62 FEET, A CENTRAL ANGLE OF 90° 11' 00", A DISTANCE OF 188.28 FEET TO AN IRON ROD IN THE NORTHWEST RIGHT-OF-WAY LINE OF WHISPERING PINES,

THENCE S 44° 49' 00" W 120.00 FEET ALONG THE NORTHWEST RIGHT-OF-WAY LINE OF WHISPERING PINES TO THE POINT OF BEGINNING AND CONTAINING 3,094 SQUARE FEET OF LAND AND BEING A TRACT OF LAND PREVIOUSLY OCCUPIED BY A PUBLIC STREET.

Billy L. Shanks

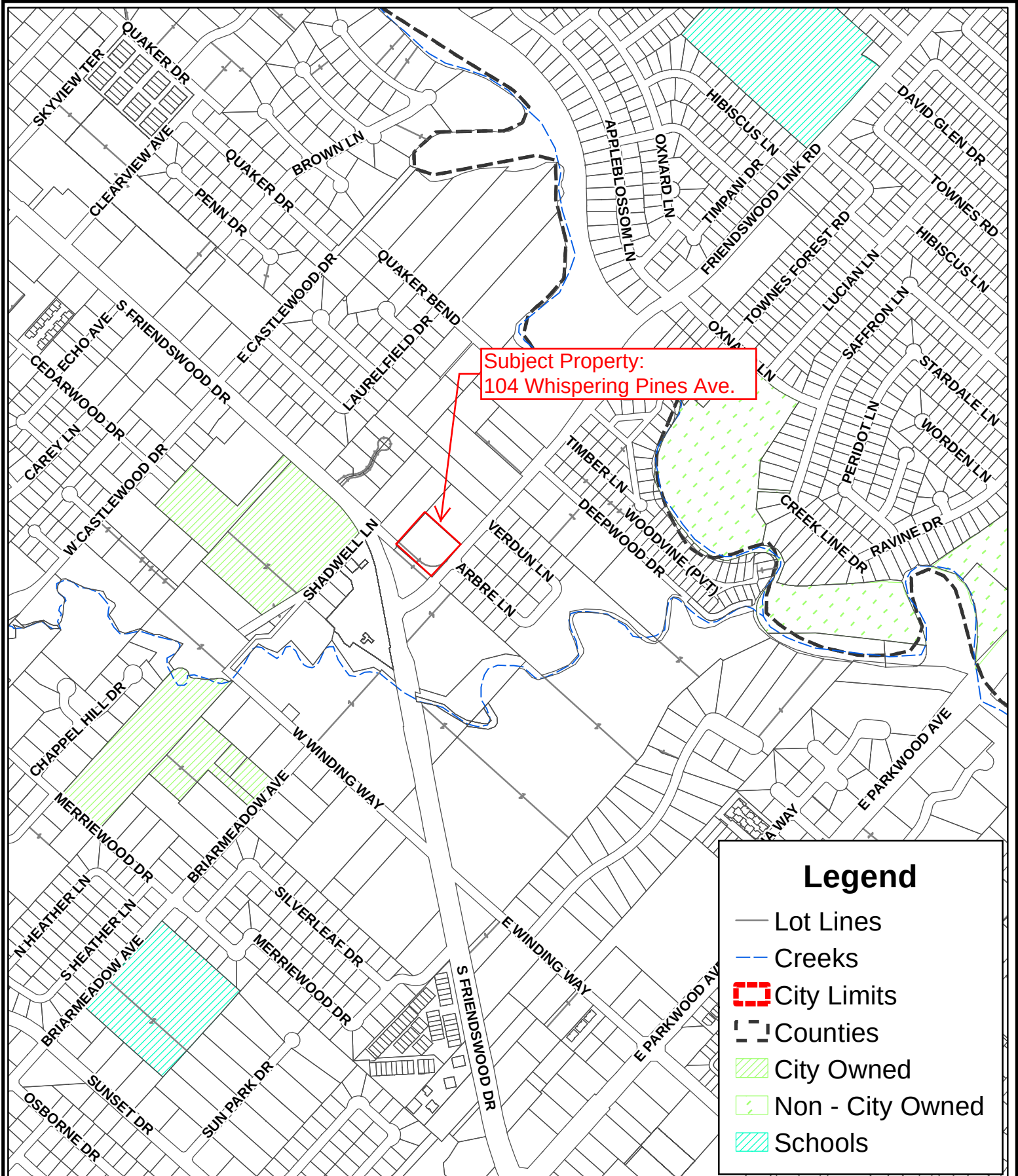


City of Friendswood
910 South Friendswood Drive
Friendswood, Texas 77546
(281) 996-3200
www.ci.friendswood.tx.us

Friendswood GIS Mapping



1" = 200'



Subject Property:
104 Whispering Pines Ave.

Legend

- Lot Lines
- Creeks
- City Limits
- Counties
- City Owned
- Non - City Owned
- Schools

Disclaimer: This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the approximate relative location of property boundaries. Gov. C. §2501.102. The user is encouraged to independently verify all information contained in this product. The City of Friendswood makes no representation or warranty as to the accuracy of this product or to its fitness for a particular purpose. The user: (1) accepts the product AS IS, WITH ALL FAULTS; (2) assumes all responsibility for the use thereof; and (3) releases the City of Friendswood from any damage, loss, or liability arising from such use.



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1" = 803'



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1" = 120'



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Friendswood GIS Mapping



1" = 120'



FRIENDSWOOD CITY COUNCIL AGENDA ITEM FORM

This form should be completed and forwarded to the City Manager's Office as soon as possible prior to the first date that the item is expected to be placed on the Friendswood City Council agenda.

Date requested for City Council consideration: February 4, 2019

Date Submitted: January 16, 2019

Dept. Clearances: Steven Rhea

Prepared by: Aubrey Harbin

Subject: Proposed amendments to Appendix B Subdivision Ordinance – Section IV. Parkland Dedication

Originating Department: Community Development

City Attorney Review: Yes

Proceeding: Joint Public Hearing

Degree of importance: Critical ☐ Significant ☐ Elective ☒

Expenditure Required:

Amount Budgeted:

Appropriation Required:

Source of Funds:

FINANCE APPROVAL: N/A

MK

Morad Kabiri
City Manager

SUMMARY / ORIGINATING CAUSE

In 2014, the City of Friendswood earned Bronze Certification in the Scenic City Certification Program. Once awarded, certifications are valid for 5 years. Since it is time to renew our application (deadline March 31), staff and the Planning and Zoning Commission reviewed the Subdivision Ordinance, Zoning Ordinance and Design Criteria Manual to identify minor changes to our ordinances that could possibly assist in achieving a higher score and improved Scenic City Certification.

The mission of the *Scenic City Certification Program* is to support and recognize Texas municipalities that implement high-quality scenic standards for public roadways and public spaces. The Scenic City Certification Program provides a proven, highly-regarded tool to Texas cities for assessment, evaluation and recognition of infrastructure standards.

This proposed amendment adds a maximum of 20% impervious cover area in parks.

IMMINENT CONSEQUENCES / BENEFIT TO COMMUNITY

The proposed ordinance changes will protect the character and stability of residential, commercial, institutional and industrial areas, conserve the value of land and buildings of surrounding properties and neighborhoods, and enhance the aesthetic and visual image of the

City of Friendswood. Many of the changes will also increase the potential for additional points on the Scenic City application thus raising the ranking level for the City from Bronze level to Silver, Gold, or Platinum.

RECOMMENDATIONS

The Planning and Zoning Commission Ordinance Subcommittee reviewed the proposed amendments and discussed the amendments with the remainder of the Commission. The Planning and Zoning Commission will make a recommendation on the proposed changes following the Joint Public Hearing.

ATTACHMENTS

[Proposed amendments to Appendix B Subdivision Ordinance – Section IV Parkland Dedication](#)

Section IV. - Parkland dedication.

a. *Purpose.*

1. This section provides recreational areas in the form of city parks as a function of subdivision development in the city. This section is enacted in accordance with the home rule powers of the city under the state Constitution, and the statutes of the state, including, but not by way of limitation, V.T.C.A., Local Government Code ch. 212.
2. Park areas shall be recommended by Keep Friendswood Beautiful and shall be shown on an official parks and recreation map for the city, which shall be adopted and may be modified from time to time by the city council. Proposed city parks and recreational areas will be established by review with the developer and city staff at the earliest possible stage of development planning, and a proposed subdivision or development shall be reviewed in its entirety and not by sections or phases.
3. The primary cost of city parks should be borne ultimately by residential property owners who, by reason of the proximity of their property to such parks, shall be the primary beneficiaries of such facilities. New residents will increase the demands for parks proportionally, and new growth should bear their share of the costs of those facilities. Therefore, the following requirements are adopted to effect the purposes herein stated.

b. *General requirements.* Residentially zoned land, to be used for single-family, townhomes, garden homes, mobile homes, and/or multifamily residential purposes.

1. Whenever a final plat is filed of record with the county clerk for development of a residential area in accordance with the platting and zoning regulations of the city, such plat shall contain a clear fee simple dedication to the city of an area of land for park purposes, which area shall be equal to one acre for each 133 proposed dwellings, based on the proposed subdivision or development in its entirety and not by sections or phases. Any proposed plat submitted to the city for approval shall show the parkland proposed to be dedicated under this subsection. The dedication required by this section may be met by a payment of money in lieu of land when permitted or required by the other provisions of this subsection. The dedication required by this section should be in accordance with goals outlined within the city parks and open space master plan, or be located at the site for an identified existing park.
2. The city council declares that development of an area smaller than five acres for the purpose of a city park is impractical. Therefore, if fewer than 655 dwellings are proposed by a plat filed for approval, the developer shall be required to pay the applicable cash in lieu of land amounts provided by subsection d of this section, rather than to dedicate any land area. In most instances, no plat showing a dedication to the city of less than five acres shall be approved; provided, however, that the city may accept smaller parcels where such proposed dedication is in the best interests of the city, such as when a smaller parcel is adjacent to an existing park or future park site.
3. Developers should evaluate their proposed development and proposed dedication with city staff to ensure that as soon in the development process as possible the land dedicated is usable for city parks purposes.
4. A dedication required by this section shall be made in accordance with subsection d.1 of this section. If the actual number of completed dwelling units exceeds the figure upon which the original dedication was based, an additional dedication shall be required, and shall be made by payment of the cash in lieu of land amount provided by subsection d of this section.

c. *Timing of dedication or payment of fees in lieu of land.*

1. Parkland shall be dedicated to the city at the time of filing of the final plat of the first phase and section, if a phased development. The dedication shall be made contemporaneously by separate instrument and must be accepted by the city council prior to the filing of the final plat. Lack of acceptance of such dedication shall preclude the filing of the final plat and shall not

relieve the subdivider of complying with the requirements of this section. Where a dedication of parkland for the entirety of a phased development is proposed, the parkland shall be shown on the plat, if included within the first phase, and dedicated by separate instrument, or dedicated by separate instrument if located outside of the first phase of development, at the time of filing the final plat for the first section of such phased development.

2. Payment of fees in lieu of land shall be done at the time of filing of the final plat. Where payment of fees in lieu of land for parks for the entirety of a phased development is planned, such payment may be made in full for all phases of the proposed development at the time of filing of the plat for the first phase, or payment of fees in lieu of land for each section of a phased development may be made at the time of filing of the final plat for each phase or section, at the discretion of the developer.

d. *Fees in lieu of land.*

1. Any landowner responsible for dedication under this section shall review their proposed development with city staff, including Keep Friendswood Beautiful on recommendation of staff, prior to or simultaneously with making any formal application to the city, for the purpose of evaluating compliance with this section. If no agreement is reached between the developer and city staff, then within 14 days from receipt of a written request by the developer, city staff shall submit the issue to Keep Friendswood Beautiful. If Keep Friendswood Beautiful can reach an agreement with the developer, that recommendation shall be final, subject to the acceptance of such dedication by city council as described in this subsection d. If Keep Friendswood Beautiful cannot reach an agreement with the developer, the planning and zoning commission shall hear the issue at its next meeting, and shall make the final decision. This decision is final unless there is a substantial change in conditions. Generally, the landowner will have the option to dedicate land or pay fees in lieu thereof. However, the city expressly reserves the right to require dedication of land rather than accept fees in instances including, but not limited to, the proposed development is adjacent to an existing city park or in areas in which additional parkland is desired.
2. As provided above, any landowner responsible for dedication under this section shall, when permitted, meet the requirements of subsection c of this subsection or this subsection d in whole or in part by a cash payment in lieu of land, in the amount set forth in this section IV. Such payment in lieu of land shall be made at or prior to the time of final plat approval for city parks as described in subsection c.1 of this section.
3. A per-dwelling unit fee shall be set by resolution and printed in from time to time by the city council, incorporated in the fee schedule, Appendix D to this Code, in amounts sufficient to acquire land and provide for adjacent streets and utilities for a park.

e. *Parkland dedication fund.*

1. There is hereby established a special fund for the deposit of all sums paid in lieu of land dedication under this section or any preceding ordinance, which fund shall be known as the "parkland dedication fund." Funds shall only be released from the parkland dedication fund upon city council approval of a plan to utilize the funds to build or enhance an existing park or purchase land for a future park.
2. The city shall account for all sums paid in lieu of land dedication under this section with reference to the individual plats involved. Any funds paid for such purpose must be expended by the city within ten years after the filing of the final plat, or the filing of the final plat of each phase or section of the contributing subdivision, if a phased development. If not so expended, the owners of the property beginning on the first day after the expiration of such ten-year period shall be entitled to a pro rata refund of such sum, computed on a square footage of area basis. The owners of such property must request such refund within one year of entitlement. Such request must be made in writing to the city manager or his/her designee or such right shall be barred.

3. Where funds or a dedication for a phased development have been paid or made for the entire development at one time, and the original developer does not complete all phases of the entire development, credit for such prior dedication or payment shall be applied to subsequent plats for the same land on a pro rata basis. Increased density will require the dedication of additional parkland or payment of additional fees.

f. *Additional requirements.*

1. Any land dedicated to the city under this section must be suitable for park and recreation uses. The following characteristics of a proposed area are preferred wherever possible:
 - (a) The city reserves the right to decline any dedication of proposed parkland if it is determined to be in the best interests of the city.
 - (b) Park sites should preferably be located so that users are not required to cross arterial roadways to access them.
 - (c) Sites should be located adjacent to schools, where possible, in order to encourage both shared facilities and the potential co-development of new sites.
 - (d) Sites should be located adjacent to a greenbelt system, where possible, so that connections to a trail network may be easily achieved.
 - (e) Sites should not have unusual topography which would render the land unusable for organized recreational activities where these activities are necessary to the type of park.
 - (f) Sites should have and retain existing trees or other scenic elements.
 - (g) Land subject to an easement or a right-of-way shall comprise no more than 25 percent of the total land dedicated under the provisions of this section. In addition, any land that is subject to an easement or a right-of-way and which is dedicated under this section must be contiguous with the other area dedicated to the city and must conform with all other requirements of this section.
 - (h) All offers of dedication must be accompanied by a phase one environmental study verifying the absence of conditions which would inhibit or prohibit its future use and development as park facilities.
2. Parks should be easy to access and be open to public view so as to benefit area development, enhance the visual character of the city, protect public safety and minimize conflict with adjacent land uses. The following guidelines should be used in designing parks and adjacent development:
 - (a) Where physically feasible, parks should be bounded by streets, or by other public uses (e.g., school, library, recreation center).
 - (b) A proposed subdivision adjacent to a park may not be designed to restrict reasonable access to the park from other area subdivisions. Street or pedestrian connections to existing and future adjoining subdivisions may be required to provide reasonable access to parks.
 - (c) Where a nonresidential use directly abuts a park, the city may require the developer to construct, at his expense, screening of a minimum height of eight feet. The screened area must be landscaped on the park side. Access points from the nonresidential use to the park may be permitted.
 - (d) Alleys may abut a park, where otherwise allowed by ordinance, but they should not be designed to encourage motorized traffic to the park.
 - (e) Streets abutting a park shall be built in accordance with the thoroughfare plan and the standards of this section, provided, however, the city may require any residential street built adjacent to a park to be constructed to collector width to ensure access and prevent traffic congestion, subject to a proportionality review of the impacts generated by the

subdivision, provided, further, that the city may enter into a development agreement with the subdivider to share the costs of street construction for abutting streets.

- (f) Wildlife, existing trees and shrubs on the site shall be preserved to the greatest extent practicable.

(g) A park shall not have impervious cover exceeding 20 percent of the open space area.

Commented [BS1]: Scenic City – 5 points.

3. When parkland is acquired, the city shall reserve sufficient land to provide a minimum of 50 percent of the total street width where a street is required to abut a park.
 4. In all cases, the city shall review and may require modification of the proposed street alignment fronting on city parks and recreation areas. Developers should also provide, where possible, street or pedestrian access to all creeks or drainageways which are maintained by a homeowner association or dedicated as a drainage and floodway easement to the city or the applicable drainage district.
 5. Drainage areas may be accepted as part of a park if the drainage facilities are constructed in accordance with city engineering standards, and if no significant area of the park is cut off from access by such drainage facilities. Where the city has designated a floodplain as part of the city park system, the park design shall provide public access for all areas of the park.
 6. Any parkland proposal considered by the commission under this section shall have been reviewed by the director of community services and his recommendation given to the commission. The commission may make a decision contrary to such recommendation by a simple majority vote.
- g. *Partial credit for land, private parkland, private recreation facilities, or open space.* Keep Friendswood Beautiful, upon an affirmative recommendation of the director of community services, may reduce the amount of parkland to be deeded to the city or reduce the fees in lieu of parkland to be paid to the city as provided below.
1. A reduction from the initial parkland dedication requirement may be made where parkland within the same park area as the subdivision which generates the required conveyance is dedicated for a private park. For purposes of this subsection, the private parkland dedication shall meet the following minimum requirements:
 - (a) The park area shall be leveled and seeded by the subdivider to produce green space. The city will determine if the parkland can be left in its natural state;
 - (b) The park area shall be located within the subdivision generating the parkland requirements; and
 - (c) Restrictive covenants shall be filed of record in the appropriate county providing for the creation and operation of a homeowner association to maintain and improve such private park area, or, in the case of such private park area within a multifamily development, such as an apartment complex, provide for maintenance and improvement by the owners of the multifamily development.
 2. A reduction from the initial parkland dedication requirement may be made for recreational improvements made to private parkland within the same park area as the subdivision which generates the required conveyance. Such recreational improvements to parkland may include, but are not limited to, the following: children's play apparatus, landscaped areas, picnic areas, game court areas, playfields, swimming pools, and recreation center buildings and facilities. All improvements shall meet the same applicable regulations or codes as for like improvements on public property.
 3. A reduction from the initial parkland dedication requirement may be made for common open space, whether public or private, within the subdivision which generates the required conveyance. Such open space may be in the form of greenbelts along creek beds, or around the perimeter of the subdivision, and may include improvements such as hike and bike trails. In no case shall credit be given under this subsection for landscaped or seeded medians. A further

reduction may be given where the common open space is linked with undeveloped or developed parkland or other recreational facilities.

4. In order to receive the credits under subsection g.1, 2, or 3 of this section, the subdivider shall provide documentation to the director of community services at the time of final plat filing sufficient to establish the validity of the estimated costs that will be used to determine the reduction under this subsection. In the event that the developer proposes to construct the improvements at a later date, as in a phased development, the city may require that the developer obtain a surety bond, performance bond, or other form of guarantee that the recreational amenities will be installed within four years from the date of filing of the final plat of the first phase of the phased development. The director of community services shall evaluate the documentation submitted and shall approve the value prior to any reduction being given under this subsection. Credits are cumulative, but in no case shall credits given under this subsection exceed 100 percent of the total dedication of land or fees required for city parks under this appendix. In cases where the estimated costs of the improvements are disputed, the value shall be as finally determined by the director of the community services. If no agreement is reached between the developer and city staff, then within 14 days from receipt of written request by the developer, city staff shall submit the issue to Keep Friendswood Beautiful. If Keep Friendswood Beautiful can reach an agreement with the developer that recommendation shall be final. If Keep Friendswood Beautiful cannot reach an agreement with the developer, the planning and zoning commission shall hear the issue at their next meeting, and shall make the final decision. This decision is final unless there is a substantial change in conditions.
5. A credit may be given of up to 50 percent of the total dedication of land or fees required under this appendix where the developer makes improvements to public parks, as described under subsection g.2 of this section.
6. Credit for city parks may be based on previously installed amenities within a phased development, where amenities and recreational improvement have been constructed in earlier phases, where no parkland dedication was required, subsequent phases for which park dedication is required, may count those previously installed amenities. Under no circumstances will double credit be given for a previously installed amenity.
- h. *Minimum park improvement standards.* Prior to acceptance by the city and prior to the filing of the final subdivision plat, any parkland dedicated to the city, or developed as a private park for credit against parkland dedication under this section, shall meet the following minimum standards:
 1. The public park area shall be leveled and seeded (as deemed necessary by the city) by the subdivider to produce green space prior to the completion of the first phase of the development of the subdivision, if the development is being executed in phases. Existing trees and shrubs on the site shall be preserved to the greatest extent practicable. The subdivider will be responsible for the maintenance of the public park area for a minimum of one year after the completion of the subdivision (or the completion of the final phase or section of the subdivision), at which time the city will assume maintenance responsibilities in the park. The subdivider is also responsible for notifying each homeowner in the subdivision of the existence of any private park area and its conditions of ownership.
 2. Any improvements provided by the developer to parkland shall comply with applicable regulations and codes set forth for such improvements.

(Ord. No. 2000-01, § 2, 1-17-2000; Ord. No. 2012-24, § 1(exh. A), 11-5-2012; Ord. No. 2015-29, §1 (exh. A), 12-7-2015)



FRIENDSWOOD CITY COUNCIL AGENDA ITEM FORM

This form should be completed and forwarded to the City Manager's Office as soon as possible prior to the first date that the item is expected to be placed on the Friendswood City Council agenda.

Date requested for City Council consideration: February 4, 2019

Date Submitted: January 16, 2019

Dept. Clearances: Steven Rhea

Prepared by: Aubrey Harbin

Subject: Proposed amendments to Appendix C Zoning Ordinance Section 7.5 – Community Overlay District

Originating Department: Community Development

City Attorney Review: Yes

Proceeding: Joint Public Hearing

Degree of importance: Critical ☐ Significant ☐ Elective ☐

Expenditure Required:

Amount Budgeted:

Appropriation Required:

Source of Funds:

FINANCE APPROVAL:

MK

Morad Kabiri
City Manager

SUMMARY / ORIGINATING CAUSE

In 2014, the City of Friendswood earned Bronze Certification in the Scenic City Certification Program. Once awarded, certifications are valid for 5 years. Since it is time to renew our application (deadline March 31), staff and the Planning and Zoning Commission reviewed the Subdivision Ordinance, Zoning Ordinance and Design Criteria Manual to identify minor changes to our ordinances that could possibly assist in achieving a higher score and improved Scenic City Certification.

The mission of the *Scenic City Certification Program* is to support and recognize Texas municipalities that implement high-quality scenic standards for public roadways and public spaces. The Scenic City Certification Program provides a proven, highly-regarded tool to Texas cities for assessment, evaluation and recognition of infrastructure standards.

This proposed amendment adds a reference note to the new dumpster screening requirements being proposed in Appendix C Zoning Ordinance Section 8.

IMMINENT CONSEQUENCES / BENEFIT TO COMMUNITY

The proposed ordinance changes will protect the character and stability of residential, commercial, institutional and industrial areas, conserve the value of land and buildings of surrounding properties and neighborhoods, and enhance the aesthetic and visual image of the City of Friendswood. Many of the changes will also increase the potential for additional points

on the Scenic City application thus raising the ranking level for the City from Bronze level to Silver, Gold, or Platinum.

RECOMMENDATIONS

The Planning and Zoning Commission Ordinance Subcommittee reviewed the proposed amendments and discussed the amendments with the remainder of the Commission. The Planning and Zoning Commission will make a recommendation on the proposed changes following the Joint Public Hearing.

ATTACHMENTS

[Proposed amendments to Appendix C Zoning Ordinance Section 7.5 – COD](#)

Section 7.5. - Community overlay district.

1. **General purpose and description.** The community overlay district (COD) is intended to preserve and enhance the physical characteristics of the city along its entryways and in the downtown area by promoting the safety, welfare, convenience, and enjoyment of travel along these roads; providing for unified and orderly development; and promoting and aiding economic growth. The establishment of a COD does not repeal the underlying zoning classification of property to which the COD applies. The requirements of the COD are in addition to the requirements of the underlying zoning district, with the exception of the downtown district. The COD does not apply to the DD. The DD is subject to supplementary regulations and the DD geographic limitations as shown on the official zoning map. The COD includes the following thoroughfares: FM 2351 from Friendswood City Limit to Friendswood City Limit, FM 518 from the Friendswood City Limit to the Friendswood City Limit, FM 528 from Friendswood City Limit to Friendswood City Limit, Friendswood Lakes Boulevard (also known as Brittany Bay) from Friendswood City Limit to Friendswood City Limit, Bay Area Boulevard, from Friendswood City Limit to FM 528.
2. **Boundaries.** The boundary of the COD shall be parallel to the thoroughfare right-of-way to include nonresidential properties within 300 feet from the right-of-way. If any portion of such property is within 300 feet, the entire tract is subject to the COD requirements.
3. **Screening.** The following uses on the site shall be screened to a height sufficient to completely screen the use from view at ground level. For the purposes of this subsection, the term "view from ground level" shall mean the view from public walkways situated in the adjoining rights-of-way or from vehicular traffic in the first two traffic lanes in the bordering streets of the COD.
 - a. All outside storage;
 - b. Industrial activities;
 - c. Off-street loading areas;
 - d. Refuse storage areas, dumpsters, and all related activities; [See section 8.L.](#)
 - e. Air conditioning, refrigeration, heating, and other mechanical and electrical equipment;
 - f. Microwave and satellite antennas not otherwise preempted from regulation by applicable law or regulation;
 - g. Detention ponds*; and
 - h. Garage bays fronting on the thoroughfares described in subsection 1 of this section.

An opaque screen composed of berms,** walls, fences, vegetation, or a combination of these materials between the property line and the development shall be used; however, in no case shall any of the above-mentioned activities be closer to the street than the setback line.

*If detention ponds are part of the landscaping plan, screening would not be necessary. Ponds may be located no closer than ten feet from abutting rights-of-way if the pond serves only the subject property.

**Berms used for any type of screening shall be limited to a height of three feet above finished grade at the front property line (not including detention facilities), and shall be landscaped.

4. **Utilities.** All permanent utilities serving the property shall be located underground, at the owner's expense.
5. **Landscaping.** The minimum landscaping requirements for areas within the COD shall be as follows:
 - a. All landscape buffers shall be provided with architectural and/or landscape materials to screen structures, facilities, drive areas, parking areas, etc. Shrubs shall be a minimum height of two feet when planted and shall be placed a maximum of two feet apart. Mature shrubs shall be maintained in a live or living condition to form a continuous hedge with a maximum height of three feet six inches.

Commented [BS1]: Added new section for dumpster requirements.

- b. Nothing contained in this subsection 5 shall be deemed to reduce applicable landscaping requirements contained in other sections of this Code, or any ordinance specifically applicable to a development (e.g., specific use permit or planned unit development), but instead to enhance the aesthetics along the city's major thoroughfares by requiring additional or higher percentages of landscaping.
 - c. Parking lots within the COD containing 20 parking spaces or less shall have open landscaped areas that are equal to not less than 15 percent of the parking area and drives in the parking area. The required area may be used as islands or perimeter landscaping or in any combination. A minimum of one Class 1 or Class 2 tree from the qualified tree list shall be planted and maintained for each 250 square feet, or portion thereof landscaped open space area.
 - d. Parking lots within the COD containing greater than 20 parking spaces shall have open landscaped areas equal to 20 percent of the parking area and drives in the parking area. Fifty percent of the required landscaped area must be used as islands. Perimeter landscaping shall have at least one such tree for each 30 (40 lineal feet if not located in the COD) lineal feet or fraction thereof. Each island shall have one such tree planted and maintained thereon.
 - e. If a buffer strip is required (along public rights-of-way, or to separate uses per section 8.I), the buffer shall be a minimum width of 15 feet, and shall contain not less than one tree, whether existing or planted, for each 25 lineal feet or portion thereof. Each such tree shall have a caliper of not less than two inches measured 18 inches above the natural ground level.
 - f. If, at any time, the required vegetation becomes diseased, deteriorated, or dies, the owner of the premises must replace the vegetation within 90 days of written notice from the city.
 - g. The commission may approve an alternate equal or better landscape plan in the COD, after giving due consideration to the intensity of the commercial use, the zoning classification and adjacent land uses.
6. *Architectural elements.* Garage bays or other similar large openings designed for automotive or industrial work, or designed for vehicles to drive into, shall not front a COD thoroughfare unless screened with architectural or landscaping materials as outlined under subsection 3 of this section. This prohibition shall not include drive-throughs such as are typically found at banks or fast-food establishments. In the event that COD requirements overlap at intersections, architectural requirements regarding garage bays shall apply only to the frontage on one street as designated on the site plan.
- a. *Commercial.*
 - (1) Commercial developments shall have exterior cladding of brick, masonry, stone, stucco or glass on all sides of the building. Fiber cement boards/siding are prohibited, except as trim for eaves and overhangs. These exterior facades, as well as the roof, shall be limited to earth tone colors. Color samples shall be submitted and approved as a part of the commercial site plan. The planning and zoning commission may approve alternative exterior facade materials.
 - (2) The design of walls and other structures located on the same site, including those used to screen outdoor storage areas, dumpsters, vehicles, etc., shall be constructed of the same materials as the main building on the lot. Cyclone fences are prohibited, except under limited circumstances, the commission may approve a vinyl coated cyclone fence.
 - (3) Notwithstanding subsections 6.a(1) and (2) of this section, an applicant may present to the planning and zoning commission, on the site plan, specifications which include elevation drawings of proposed alternative materials. The planning and zoning commission may approve such alternative materials if they meet or exceed the appearance and durability requirements above.
 - b. *Residential.*
 - (1) Residential developments not facing a COD thoroughfare shall be required to install a visual barrier to a minimum mature height of six feet as measured from the finished grade. The

barrier shall be set back from the street right-of-way line by a minimum of ten feet. Various materials may be utilized, including landscaped earth berms, provided the materials are durable and require low maintenance. All barriers shall be maintained by the owner of the property on which such barrier is located, or by a homeowners' association. If a homeowners' association is to provide such maintenance, the obligations therefor shall be set forth in writing, and filed of record in the same manner that other restrictive covenants are filed. Subdivision plats submitted for residential property along a COD corridor shall include detailed information and visual representations of the proposed barrier, and such other information as deemed necessary by the planning and zoning commission to establish compliance with this subsection.

- (2) Trees shall be planted adjacent to the barrier, on the COD thoroughfare side, at intervals of 25 feet, with one-half having a minimum caliper of four inches and one-half having a minimum caliper of two inches. Existing qualified trees may be counted toward fulfillment of this requirement, provided that the size, species, and guaranteed duration shall meet the criteria of the landscaping section of this appendix. (Clustering of trees shall be permitted, provided, however, clustering shall not reduce the number of required trees, and trees shall not be clustered so as to lessen the survival rate of other trees.)

(Ord. No. 99-37, § 1, 10-18-1999; Ord. No. 2000-25, §§ 2—5, 8-24-2000; Ord. No. 2004-07, § 1, 8-16-2004; Ord. No. 2006-15, §§ 2, 3, 7-24-2006; Ord. No. 2007-18, § 1, 10-15-2007; Ord. No. 2008-38, § 1, 11-3-2008; Ord. No. 2010-37, § 1, 1-10-2011; Ord. No. 2013-10, § 2, 5-6-2013)



FRIENDSWOOD CITY COUNCIL AGENDA ITEM FORM

This form should be completed and forwarded to the City Manager's Office as soon as possible prior to the first date that the item is expected to be placed on the Friendswood City Council agenda.

Date requested for City Council consideration: February 4, 2019

Date Submitted: January 16, 2019

Dept. Clearances: Steven Rhea

Prepared by: Aubrey Harbin

Subject: Proposed amendments to Appendix C Zoning Ordinance Section 8 – Supplementary District Regulations

Originating Department: Community Development

City Attorney Review: Yes

Proceeding: Joint Public Hearing

Degree of importance: Critical ☐ Significant ☐ Elective ☐

Expenditure Required:

Amount Budgeted:

Appropriation Required:

Source of Funds:

FINANCE APPROVAL:

MK

Morad Kabiri
City Manager

SUMMARY / ORIGINATING CAUSE

In 2014, the City of Friendswood earned Bronze Certification in the Scenic City Certification Program. Once awarded, certifications are valid for 5 years. Since it is time to renew our application (deadline March 31), staff and the Planning and Zoning Commission reviewed the Subdivision Ordinance, Zoning Ordinance and Design Criteria Manual to identify minor changes to our ordinances that could possibly assist in achieving a higher score and improved Scenic City Certification.

The mission of the *Scenic City Certification Program* is to support and recognize Texas municipalities that implement high-quality scenic standards for public roadways and public spaces. The Scenic City Certification Program provides a proven, highly-regarded tool to Texas cities for assessment, evaluation and recognition of infrastructure standards.

The proposed amendments in this section include relocating language to clarify that all trees planted to meet landscaping requirements be a minimum 8 feet tall; the location of this item in the zoning ordinance appeared to only apply to certain trees. The changes also add criteria for the protection of trees during and after construction, more specific guidelines to require curbs around island areas within parking lots, require irrigation for long-term maintenance of landscaping, as well as add more specific dumpster screening details.

IMMINENT CONSEQUENCES / BENEFIT TO COMMUNITY

The proposed ordinance changes will protect the character and stability of residential, commercial, institutional and industrial areas, conserve the value of land and buildings of surrounding properties and neighborhoods, and enhance the aesthetic and visual image of the City of Friendswood. Many of the changes will also increase the potential for additional points on the Scenic City application thus raising the ranking level for the City from Bronze level to Silver, Gold, or Platinum.

RECOMMENDATIONS

The Planning and Zoning Commission Ordinance Subcommittee reviewed the proposed amendments and discussed the amendments with the remainder of the Commission. The Planning and Zoning Commission will make a recommendation on the proposed changes following the Joint Public Hearing.

ATTACHMENTS

[Proposed amendments to Appendix C Zoning Ordinance Section 8 – Supplementary District Regulations](#)

Section 8. - Supplementary district regulations.

- A. *Visibility at intersections in residential districts.* On a corner lot in any residential district, hedges and vegetation shall not be planted or allowed to grow in such a manner to materially impede vision between a height of 2½ feet and ten feet above the centerline grades of the intersecting streets in the area bounded by the street lines on such corner lots and a line joining points along said street lines 25 feet from the point of the intersection.
- B. *Fences and walls.* Except as provided below, fences and walls are permitted in or along the edge of any required yard. However, no fence or wall shall be constructed on any exterior side yard so as to constitute a hazardous visual obstruction to traffic in any direction, and the same must conform to subsection A of this section. Additionally, fences and walls may only be constructed in front yards on lots adjacent to FM 528, FM 2351, and FM 518 north of FM 2351 and south of FM 528 or on lots greater than two acres, provided that no hazardous visual obstruction is created. On residential lots, decorative, transparent fences may be constructed in front yards on lots greater than two acres or that have a minimum lot width of 150 feet at the street. Chain-link and barbed wire fences are prohibited in the front yards in residential districts. Additionally, all fences must be installed with the finished side facing outward. Exception: any size lot may construct a fence when all adjoining lots facing the same right-of-way or private street have existing compliant fences in the front yard.
- C. *Accessory buildings.* Except as specifically permitted by this appendix, no accessory building shall be erected in any required yard, and no separate accessory building shall be erected within five feet of any other buildings.
- D. *Erection of more than one principal structure on a lot.* In any district, more than one structure housing a permitted or permissible principal use may be erected on a single lot, provided that yard, street frontage, and other requirements of this appendix shall be met for each structure as though it were on an individual lot.
- E. *Structures to have access.* Every building hereafter erected shall be on a lot adjacent to a public street, an approved private street, or provide written documentation for shared access agreements, and all structures shall be so located on lots as to provide safe and convenient access for servicing, fire protection, shared parking and/or off-street parking.
- F. *Off-street parking and loading regulations.* It is the intent of this section to ensure that adequate off-street parking is provided with the construction, alteration, remodeling or change of use of any building or change of use of land. Specific guidelines regarding recommended off-street parking spaces and parking lot geometrics shall comply with the requirements of the current design criteria.
 - a. Approval by the commission shall be required of parking area layouts and design of all off-street parking, including shared parking areas, with the recommendation by the city engineer. The city engineer shall render to the commission his recommendation regarding the usability of the proposed parking spaces, and the adequacy of vehicular circulation patterns.
 - b. Downtown district parking. To promote pedestrian friendly environments, shared parking and shared parking access is encouraged. Head-in parking may be allowed in the DD with the approval of the commission, upon recommendation of the city engineer, in areas at least 400 feet from FM 518 and/or FM 2351. No on-street parking shall be allowed on FM 518 or on FM 2351 within the DD. Parking spaces and parking lot geometrics shall comply with the requirements of the current design criteria.
- G. *Off-street loading regulations.* The intent of this section is to ensure that an adequate off-street loading area is provided with the construction, alteration, or change of use of any business building or structure, or with any change in land use.
 - 1. The owner and the occupier of any property upon which a business is located shall provide loading and unloading areas of sufficient number and facility to accommodate on such business premises all vehicles that will be reasonably expected to simultaneously deliver or receive materials or merchandise, and of sufficient size to accommodate all types of vehicles that will be reasonably expected to engage in such loading or unloading activities.

2. Any person desiring a building permit for the construction, alteration, or change of use of the land or any business building or structure shall submit a plot plan to the building official designating the number, dimensions and locations of all loading areas and all proposed avenues of ingress and egress to the property from adjacent public thoroughfares. The building official shall not issue such permit if it is determined that the proposed loading and unloading facilities will present a direct or indirect hazard to vehicular or pedestrian traffic.

H. *Modification of standards proposed within a PUD.*

1. Following adoption of a PUD ordinance pursuant to this section, all subsequent plans prepared for the development or any portion of the property within a PUD must substantially conform to the approved plan in accordance with the standards of the PUD ordinance, this section, and all other applicable ordinances of the city.
2. The city recognizes that market conditions may alter the development of a large PUD and hereby provides that alterations in the land area or square footage, as appropriate, covered by a category of use, may be varied by not more than 25 percent. In no case shall such variations change traffic or circulation patterns, substantially alter the number or arrangement of buildings, increase the height of buildings, lessen the amount or effectiveness of open space or landscaped buffers, or result in a greater impact on adjacent properties or neighborhoods. Percentage changes specified herein shall be the maximum change allowed; multiple changes exceeding those percentages shall not be approved administratively, but shall require the owner to submit an application for an amendment to the district standards.

I. *Landscaping and screening requirements.*

1. *Purpose.* The provisions of this subsection I for the installation and maintenance of landscaping and screening are intended to protect the character and stability of residential, commercial, institutional and industrial areas, to conserve the value of land and buildings of surrounding properties and neighborhoods, and to enhance the aesthetic and visual image of the community. In furtherance thereof, trees utilized to comply with the requirements of this subsection I shall be of a type contained in the list of qualified trees approved from time to time by the city council and contained in the city's design criteria manual ("Qualified Tree List").
2. *Perimeter landscaping and screening.*
 - a. *Adjacent property, buffer maintenance and installation.*
 - (1) When a commercial (CSC, LNC, NC, OP, DD, PUD, A-1) or industrial (LI, I, BP) use is established on a lot or premises located adjacent to any residential zoning district, or when any multiple-family dwelling use is established on a lot or premises adjacent to any property located in a single-family residential zoning district, or when an industrial use is established on a lot or premises adjacent to any property located in a commercial zoning district, a ten-foot in width landscaped open space buffer strip shall be installed and maintained by the owner, developer or operator of the multiple-family dwelling, commercial or industrial property between it and the adjacent protected property.
 - (2) In addition, an eight-foot-high opaque fence or wall shall be erected and maintained along the common property line. Graduated fences may be allowed by the commission, when the safety and general welfare of the public would be better protected by such design. The fence or wall shall be constructed of wood, masonry, or decorative concrete, or any combination thereof. Metal may be used only as a concealed structural element. Alternatively, some types of vegetation may be allowed for such screening, provided plantings are evergreen and dense enough to provide an opaque or substantially opaque screen. Any combination of fencing, earthen berms, and vegetation may be used to comply with the eight-foot screening requirement.
 - (3) The provisions of this subsection may not apply where the uses are separated by a driveway, easement, drainage ditch, canal, or similar features determined to provide adequate buffering to those listed herein which are a minimum width of 30 feet. The commission shall determine the required screening after giving due consideration to the

intensity of the commercial use, the zoning classification, and adjacent land uses. When a residentially zoned property is rezoned to commercial, an existing fence may, if requested by the staff, the commission, or the applicant, be removed, in whole or in part, to allow joint or shared access to parking and driving areas. Documentation may be required detailing a joint use agreement between or among property owners.

Conversely, when a single-family use is established on property adjacent to any commercial, industrial, or multiple-family zoning district, an eight-foot high opaque fence or wall shall be erected and maintained along the property line. The ten-foot buffer strip shall not in this instance be required.

a-1. *Adjacent property, buffering streets.* All land zoned commercial or industrial, as that term is defined in this section, shall have a minimum ten-foot landscaped open space adjacent to each public right-of-way located within the required yard.

b. *Trees for buffer strips.* If an open space buffer strip is required under the terms of this subsection I, not less than one tree, whether existing or planted, shall be maintained for each 25 lineal feet or portion thereof of solid open space buffer strip.

b-1. *Each such landscape trees. All required trees for landscaping* shall be not less than eight feet in height immediately upon planting and shall have a caliper of not less than two inches measured 18 inches above the natural ground level.

Commented [BS2]: Staff change.

c. *Off-street parking landscaping.*

(1) All areas, other than those located within the industrial district, that are used for parking or display of vehicles, boats, construction equipment or production equipment, shall conform to the minimum landscaping requirements of this subsection 2.c. Areas that are of a drive-in nature, such as filling stations, grocery stores, banks and restaurants also, shall conform to the minimum landscaping requirements of this subsection 2.c.

(2) It is the intent of this subsection 2.c to promote the placement of trees along the thoroughfares of the city. Therefore, at least 50 percent of the required trees shall be located between the street and any buildings. No tree other than those species listed as small trees (size 3) on the qualified tree list may be planted under or within ten lateral feet of any overhead utility wire, or over or within five lateral feet of any underground water line, sewer line, transmission line or other utility.

(3) Parking lots shall be considered small if they contain spaces for 20 or less cars. Small parking lots shall have "open" landscaped areas that are equal to not less than ten percent of the parking area and drives in the parking area. The required area may be used as islands or perimeter landscaping or in any combination. A minimum of one Class 1 or Class 2 tree from the qualified tree list shall be planted and maintained for each 250 square feet or portion thereof of landscaped open space area. Parking lots with more than 20 parking spaces shall have open landscaped areas equal to ten percent of the parking area and drives in the parking area. Fifty percent of the required landscaped area shall be used as islands. Perimeter landscaping shall have at least one such tree for each 40 lineal feet or fraction thereof. Each island shall have one such tree planted and maintained thereon.

(4) All planted islands shall have curbs of sufficient height and width to contain the planted island.

Commented [BS3]: Scenic City – 3 points.

(5) Planted islands are to integrate groundcovers and small shrubs while minimizing the use of medium to tall shrubs; and shall not obstruct visibility of pedestrians and vehicles.

Commented [BS4]: Scenic City – 5 points.

(64) Off-street parking areas that are adjacent to residentially zoned property shall have opaque fences or walls, eight feet in height above ground level, which shall be erected and maintained along the property line to provide visual screening.

(75) All trees required in this subsection 2.c shall have a caliper of not less than two inches, measured 18 inches above the natural ground level.

(8) If paving around a tree is required on private property, use porous pavements such as cast-in place, monolithic turf, and concrete combinations over specimen roots to allow water and air exchange.

Commented [BS5]: Scenic City – 3 points.

(9) All plants shall receive proper irrigation to encourage deep root growth and survivability.

Commented [BS6]: Scenic City – 2 points.

d. *Existing plant material.*

(1) Where healthy planting exists on a site, the building official shall credit the property owner for existing plants that are retained and used when calculating vegetation requirements under this section. When healthy trees exist on a site, and when they are equivalent in size and species to those required by this subsection, the building official shall credit the property owner for existing trees that are retained and used when calculating requirements under this subsection.

(2) Existing landscape areas to be retained shall be protected from vehicular encroachment and damage during and after the construction phase by appropriate barriers. Parking or storing of vehicles, equipment, or materials is not allowed within the protective root zone.

Commented [BS7]: Scenic City – 8 points.

(3) Protective barricades are to be installed around all protected trees prior to any construction activities on a development site. Barricades are to be installed a minimum of 10-feet from a protected tree or at the designated protective root zone.

Commented [BS8]: Scenic City – 2 points.

(4) Protective barricades may be removed only to prepare the development site for final landscaping activities.

Commented [BS9]: Scenic City – 3 points.

e. *Maintenance and care of trees.*

(1) *Maintenance period for trees.* For any tree installed in fulfillment of the requirements of this appendix, or any previously existing tree used in fulfillment of the requirements of this appendix, it shall be the responsibility of the then property owner to maintain such tree in a healthy condition ~~for the follow-up period~~. In the event of serious damage, disease or death of the tree, or if the tree should otherwise fail to survive said follow-up period, the then property owner shall, at his sole cost and expense, replace it with a tree that meets the requirements of this appendix, within 120 days from the date of notification by the city. ~~For purposes of this subsection e(1), the follow-up period shall be a period of two years from the date of issuance of a certificate of occupancy for each such development site or from the date of the acceptance of such development's infrastructure by the city or, in the case where both have occurred, whichever is later.~~

Commented [BS10]: Staff change. Trees should be maintained permanently.

(2) *Pruning of trees.* It shall be unlawful as a normal practice for any person, firm or city department to top any tree on public property. Topping is hereby defined as the severe cutting back of limbs to stubs larger than three inches in diameter within the tree's crown to such a degree so as to remove the normal canopy and disfigure the tree. Trees severely damaged by storms or other causes, or certain trees under utility wires or other obstructions where other pruning practices are impractical may be exempted from the requirements of this appendix at the determination of the building official.

Commented [BS11]: Staff change – Removed “follow up period”.

(3) *Maintenance of trees over rights-of-way.*

- (A) Any entity pruning trees located in public rights-of-way or in excavating in rights-of-way or in easements shall be required to notify the city building official and to prepare such plans or outline such programs as the official deems necessary. The building official's permission must be secured before such work may begin. A developer shall have the responsibility to verify that such approval has been granted prior to the installation of utilities within easements on the developer's property.
- (B) Every owner of any tree overhanging an street or right-of-way within the city shall prune the branches so that such branches shall not obstruct the light from any street lamp or obstruct the view of any street intersection and so that there shall be a clear space of eight feet above the surface of the street or sidewalk. Said owners shall remove all dead, diseased or dangerous trees, or broken or decayed limbs which constitute a menace to the safety of the public. The city shall have the right, with 14 days advance notice to the owner or agent, to prune any tree or shrub on private property when it interferes with the proper spread of light along the street from a street light or interferes with the visibility of any traffic control device or sign.

(C) It is prohibited to cut trees or clear vegetation on public rights-of-way to provide better view of off-premise signs.

Commented [BS12]: Scenic City – 5 points.

- (4) *Removal of hazardous trees.* The city shall have the right to cause the removal of any dead or diseased trees on private property within the city, when such trees constitute a hazard to life and property or harbor insects or disease which constitute a potential threat to other trees within the city. The city will notify in writing the owners of such trees. Removal shall be done by said owners at their own expense within 60 days after the date of service of notice. In the event of failure of owners to comply with such provisions, the city shall have the authority to remove such trees and charge the cost of removal on the owners' property tax notice.

f. *Preserving trees; historical significance.*

- (1) *Findings.* The founders of the city chose to locate the community in its present location because of the inspiring, tranquil beauty of the huge oaks which occupied the creek banks and surrounding terrain. The name given the new town, Friendswood, was chosen because of its apt description of the settlers members of the Friends Church, and the topographical character of the land, and the woods found in abundance along the four creeks. The city council hereby finds and determines that the preservation of the naturally wooded topography is of historical significance to the city.
- (2) *Purpose.* It is the intent of this subsection to encourage the preservation of existing trees within the city, and the historical significance thereof, and to prohibit their unwarranted destruction.
- (3) *Tree survey required.*
 - (a) A tree survey showing thereon the location of all living trees that have a caliper of 12 inches or greater, measured at a point 4½ feet above the natural ground level, shall be required for:
 - (i) All proposed development on land located in districts zoned as neighborhood commercial (NC), community shopping center (CSC), downtown district (DD), local neighborhood commercial (LNC), office park district (OPD), light industrial (LI), industrial (I), agricultural (A-1), business park (BP), planned unit development—mixed use (PUD-Mixed Use), or multifamily residential, low density (MFR-L), multifamily residential, medium density (MFR-M), and multifamily residential, high density (MFR-H);

- (ii) All proposed development on land for which a specific use permit is required by sections 7.P and 9.G; and
 - (iii) For residential developments on land located in districts zoned as single-family residential (SFR), planned unit development cluster home (PUC—Cluster Home), or multifamily residential-garden home district (MFR-GHD), provided, however, the tree survey required by this subsection shall be required only for the common areas located within those developments, such as community parks, where residents of the developments would have common access.
 - (b) If the property contains no trees fitting the description in subsection (a) of this section, no tree survey shall be required if a signed statement verifying that no such trees exist is filed with the community development office of the city (hereinafter "community development").
 - (c) The developer or owner of the property to be developed shall sign the tree survey certifying that it is, to the best of their knowledge, true and correct.
 - (d) The tree survey shall be submitted to community development concurrently with or as a part of the site plan, development permit or plat. Community development shall be authorized to review the data on-site for verification. The tree survey shall be accepted by community development or community development shall provide a notice, in writing, of its reasons for any action other than an acceptance thereof.
- (4) *Site plan to include trees.*
- (a) Every site plan submitted shall include all living trees identified on the tree survey as required by subsection I.f(3) of this section. Each such tree identified on the site plan shall bear a notation indicating the tree's status as either "protected" or "to be removed." A tree identified as "protected" indicates a tree that is not scheduled for removal during construction. A tree identified as "to be removed" indicates a tree that is scheduled for removal during construction. Each tree removed during construction shall be mitigated as required in subsection I.f(6) of this section.
 - (b) Trees identified with the notation "protected" shall also be physically marked at the development site so as to be readily distinguishable from trees that are identified on the site plan as "to be removed."
- (5) *Review and acceptance of site plan.* Community development shall review the tree survey portion of site plans to ensure compliance with the provisions of this subsection.
- (6) *Mitigation and incentives.*
- (a) Every development requiring the issuance of a development permit or the approval of a site plan or plat shall maintain a minimum of one tree from the qualified tree list for each 30 linear feet of street frontage, with such trees having a minimum caliper of two inches measured at a point 18 inches above the natural ground level.
 - (b) Class 1 or Class 2 trees, 12 inches in diameter or greater, measured at a point 4½ feet above the natural ground level, shall be counted, on a one-for-one basis, toward the minimum number of trees required by this subsection I. Trees located within a buffer zone shall not be counted unless identified as "protected."
 - (c) Mitigation shall be required, on a one-for-one basis, for every tree with a caliper of 12 inches or greater, measured at a point 4½ feet above the natural ground level, that is removed from the development site. For each such tree removed, mitigation shall be accomplished by planting one Class 1 or Class 2 tree from the qualified tree list.

- (d) New trees used for mitigation purposes or for landscaping shall have a caliper of at least three inches, measured at a point 18 inches above the natural ground level.
- (e) The landscaping plan shall clearly indicate which trees are being planted to replace trees identified as "to be removed" during development.
- (f) If, due to the nature of a proposed development and unique characteristics of land, trees cannot be planted in a sufficient number to meet the requirements hereof, a developer may elect to provide for a compensating tree to be planted elsewhere within the city. Compensating trees shall be placed on public property, as near as reasonably practicable to the development site, and may be accomplished by donating a tree in kind, or by payment to the city of such amounts as may be established from time to time by city council, based on the city's actual costs of acquisition. Compensating trees shall be planted within the time periods required for replacement trees.
- (g) To encourage maintenance of the suburban wooded character of the community, the city council may from time to time establish incentives to developments which retain more Class 1 or Class 2 category trees than is required by this subsection.
- (7) *Tree protection.* Property owners shall be required to ensure that each of the trees identified as "protected" on the site plan survives ~~the follow-up period, as defined in subsection I.e.1 of this section.~~ If a tree identified as "protected" fails to survive ~~such follow-up period,~~ the property owner shall replace such tree, at its sole cost and expense, within 120 days from the date of notification by the city, with a Class 1 or Class 2 tree from the qualified tree list, which has a minimum caliper of three inches, measured 18 inches above natural ground level.
- g. *One tree required for each lot developed for single-family residential use.* Each lot developed for single-family residential use shall have one of the ~~required~~ qualified trees located in the required front yard, before a certificate of occupancy may be issued. An exception may be made by the building official for substantially wooded lots, in instances where the building official determines there is not sufficient space in the front yard for proper growth, or where the planting of the tree would constitute a hazard to persons or property.
- h. *Exception for lots used for single-family residential dwelling purposes.* Notwithstanding any other provision of this subsection I to the contrary, nothing contained herein shall be deemed to prohibit the owner or occupant of a single-family residential dwelling from trimming, pruning, or removing any tree located on a lot owned or occupied by such person as a private residence. provided that at least one tree is retained in the front yard, per Section 8.I.g.

Commented [BS13]: Staff change. Wording changed to match the Design Criteria Manual.

Commented [BS14]: Staff change for clarification.

J. *Performance standards.*

1. *Compliance required.* Except as otherwise provided herein, no land, building or structure in any district shall be used or occupied in any manner so as to create any dangerous, injurious, noxious, or otherwise objectionable fire, explosive, or other hazard; noise or vibration; smoke, dust, or other form of air pollution; heat, cold, dampness, electrical or other substance, condition or dangerous element in such a manner or in such amount as to adversely affect the surrounding area or adjoining premises. Permitted uses as set forth in this appendix shall be undertaken and maintained only if they conform to the regulations of the section.
2. *Performance standard regulations.* The following standards shall apply in the various zoning districts as indicated:
 - a. *Exterior noise.* Noise standards shall apply to all property owners within the city and shall be in accordance with chapter 54, Offenses and Miscellaneous Provisions, article IV, Noise, of the Code of Ordinances.
 - b. *Vibration.* No vibration from any use within any zoning district shall be permitted which is perceptible without instruments at any residential property line within any residential zoning district.

c. *Lighting and glare.*

- (i) *Prohibited.* It shall be unlawful for any person to cause or permit to be energized on property under his possession or control any lighting, including, but not limited to, spotlights, floodlights or similar illuminating devices which project a glare or brightness, in excess of the standards described below, directly or indirectly upon any lot, tract, or parcel of land, other than that upon which such lighting is situated, which shall annoy, disturb, injure or endanger the comfort, repose, health, peace or safety of others, within the limits of the city.
- (ii) *Permitted.* All lighting in the city consisting of spotlights, floodlights, or similar illuminating devices shall be installed, hooded, regulated and maintained by the owner or person in control thereof in such a manner that the direct beam of any such light shall be oriented so that it will not glare upon any lot, tract, or parcel of land other than that upon which it is situated and so that it will not cause or permit any illumination from direct or indirect lighting in, on, or over the ground at or beyond the boundary of the lot, parcel, or tract above the following levels:
 - 1. One footcandle where the adjacent development is zoned for nonresidential uses.
 - 2. Twenty-five hundredths (0.25) footcandle where the adjacent development is zoned for residential uses.
- (iii) *Shielding required.* All exterior light sources visible to pedestrian or vehicular off-premises traffic are required to be shielded, except as provided below, so that the light source is not visible to said pedestrian or vehicular traffic. Lights elevated on standards, for example in parking areas, shall be side-shielded on pedestrian or off-premises vehicular travel sides. Lighting mounted on low standards (such as bollard lights) is the preferred method for illuminating smaller parking areas and walkways.
- (iv) *Exceptions.*
 - (1) Unshielded lighting facing pedestrian or off-premises vehicular sides of the property shall be permitted, provided the light source is not in excess of 1,700 lumens.
 - (2) Historical-style or architectural lighting visible to pedestrian or vehicular off-premises traffic shall be permitted, provided that the fixture or fixtures does not cause or permit any illumination in, on, or over the ground at or beyond the boundary of the lot, parcel, or tract above the following levels:
 - a. One footcandle where the adjacent development is zoned for nonresidential uses.
 - b. Twenty-five hundredths (0.25) footcandle where the adjacent development is zoned for residential uses.
- (v) *Compliance required.* This appendix shall apply for all new facilities upon adoption and publication as required by law. All existing facilities with lighting in place on the date of adoption shall comply with the requirements herein within 24 months after the effective date of the ordinance from which this appendix is derived by installing shielding, redirecting lights, or other steps necessary for compliance. The commission may grant a one-time extension of up to an additional 24 months if the property owner or agent can demonstrate hardship, including undue expense related to the time requirement for facilities replacement. Further, existing publicly owned facilities shall be required to comply with the requirements herein at such time as the facilities undergo renovation to the exterior or where overall renovation exceed 50 percent of the costs of construction of the existing facilities. Welding, new construction and repairs of facilities shall be exempt from these regulations, provided, however, that no requirements will be imposed in derogation of federal or state safety and health regulations.

d. *Particulate air contaminants.* No emissions, dust, fumes, vapors, gases, or other forms of air pollution shall be permitted in violation of the rules and regulations of the state air control board and the environmental protection agency.

3. *Exceptions from performance standards.* The owner or operator of any building, structure, operation or use which violates any performance standard may file an application for a variance from the provisions thereof wherein the applicant shall set forth all actions taken to comply with said provisions and the reasons why immediate compliance cannot be achieved. The board of adjustment may grant exceptions with respect to time of compliance, subject to such terms, conditions and requirements as it may deem reasonable to achieve maximum feasible compliance with the provisions of this section. In its determinations, the board of adjustment shall consider the following:

- a. The magnitude of the nuisance caused by the violation.
- b. The uses of property within the area of impingement by the violation.
- c. The time factors related to study, design, financing and construction of remedial work.
- d. The economic factors relating to age and useful life of the equipment.
- e. The general public interest, welfare and safety.

K. *Sign regulations.* The sign regulations are printed in Appendix A to this Code.

L. ~~Reserved.~~ Screening for Dumpsters and Recycling Storage Containers

Commented [BS15]: New section.

1. Dumpsters and Recycling Collection Areas

(a) Dumpsters and recycling collection areas shall be located to minimize their visibility from public streets.

(b) Dumpsters and recycling receptacles shall be screened to a height sufficient to screen the refuse from public view.

(c) Dumpsters and recycling collection enclosures shall contain permanent walls on three (3) sides with the service opening not directly abutting a public sidewalk. The fourth side shall incorporate enclosure doors.

Commented [BS16]: Scenic City – 5 points.

(d) The opening for removal of the dumpster or recycling receptacle for collection is a minimum of twelve (12) feet to allow for proper access when it is serviced. For every dumpster added, an additional ten (10) feet in width is required.

Commented [BS17]: Scenic City – 3 points.



FRIENDSWOOD CITY COUNCIL AGENDA ITEM FORM

This form should be completed and forwarded to the City Manager's Office as soon as possible prior to the first date that the item is expected to be placed on the Friendswood City Council agenda.

Date requested for City Council consideration: 02/02/19

Date Submitted: 01/30/19

Dept. Clearances: Melinda Welsh

Prepared by: Michelle Perez/Deputy City Secretary

Subject: Agreement with Galveston County for election services

Originating Department: City Secretary's Office

Proceeding: Discussion and possible action

City Attorney Review: Yes

Degree of importance: Critical ☒ Significant ☐ Elective ☐

Expenditure Required: \$

Amount Budgeted:*

Appropriation Required:

Source of Funds:

FINANCE APPROVAL: *krh*

MK

Morad Kabiri
City Manager

SUMMARY / ORIGINATING CAUSE

This agenda item is to approve a joint election agreement with Galveston County for election services, which will be provided to the City of Friendswood for the May 04, 2019, General Election.

(*) The 2018-19 budget for Election Services is \$28,335.

IMMINENT CONSEQUENCES / BENEFIT TO COMMUNITY

Historically, the City has conducted its own elections. However, due to the substantial cost of replacing the City's aging election equipment with the vendor's new voting system, and the vendor no longer supporting some of the key equipment and services of the current equipment, the City Secretary's office proposed during the City's budget process to contract with Galveston County for election services to conduct the City's General Election. Galveston County purchased the new voting system, which will be utilized for the first time at the May 2019 election.

Galveston County has agreed to conduct the election for the entire City, which includes Galveston County **and** Harris County voters that live in the city limits of Friendswood. Galveston County will offer county-wide vote centers so all the City's registered voters may vote at Friendswood City Hall, as they have always done for the City's elections, or at one of the other polling locations in Galveston County.

RECOMMENDATIONS

The City Secretary's office recommends Council approve the joint election agreement with Galveston County to provide election services for the City's General Election.

ATTACHMENTS

[Galveston County Agreement for Election Services](#)
[Cost estimate – Galveston County](#)

Contract for Election Services
Local Entity Countywide Vote Center Elections

This Contract is made and entered into this ____ day of _____, 20____ by and between Hon. Dwight D. Sullivan, County Clerk and County Election Officer for Galveston County (herein known as "Galveston County") and _____ on behalf of _____ ("Entity").

This Contract is being entered into pursuant to Texas Election Code, Chapter 31, Subchapter D for the purpose of ensuring that Galveston County and the Entity understand the tasks each is to perform in connection with the following election and any subsequent runoff election, to-wit:

Purpose of Election: _____

May 4, 2019
Election Date

June 8, 2019
Runoff Election Date

Early Voting will be held on April 22 – 26, 2019 from 8 a.m. to 5 p.m. and April 29 – 30, 2019 with the polls being open from 7 a.m. to 7 p.m. On Election Day the polls will be open from 7 a.m. to 7 p.m.

1. Duties and Services of Galveston County. Galveston County shall be responsible for performing the following duties and furnishing the following services and equipment in connection with the election and any subsequent runoff election.

- 1.1. Program, or arrange to have programmed, the ballot.
[Cost: Based upon the number of contests on the ballot. See the Fee Schedule]
- 1.2. Arrange to have published the legal notices of the first test of the electronic tabulating equipment as provided in Texas Election Code §127.096 and conduct all required tests of the electronic tabulating equipment under Texas Election Code §§127.096-127.098 and §§129.021-129.023. The first test shall be conducted at least five days prior to the election. In addition, it will be performed during normal business hours and open to the public.
[Cost: The cost for publishing the notice will be split equally between all the entities involved. See the Fee Schedule]
- 1.3. Provide technical and equipment support for the electronic poll books, voting machines and equipment being provided to the Entity. In the event there is an equipment failure Galveston County shall try to remedy the problem over the phone. If unable to do so, will dispatch to locations within Galveston County the appropriate technical support personnel and equipment to correct the failure.
[Cost: Included in the 10% election fee]
- 1.4. On behalf of the Entity, obtain Official Voter Registration lists from the Voter Registrar to be used during Early Voting and on Election Day.

[See Section 2.3 below]

- 1.5. Provide Ballot by Mail services for the Entity.

[See the Fee Schedule]

- 1.6. Hire Judges, Alternate Judges, and clerks to serve as election workers at the various polling locations. Workers will be paid in accordance with Section 3 of this contract and will be required to complete election training (at the discretion of the Elections Division) as a prerequisite for serving. Workers will be paid \$40 for attending training.
- 1.7. Select the countywide vote center polling locations in coordination with the Entity and with the approval of Galveston County Commissioners' Court.
- 1.8. Provide the Entity ****and where possible the candidates running for office***, a sample ballot for them to proof and approve or provide corrections.
[See sections 2.6 and 2.7 for related information]

****The Entity will be responsible for providing Galveston County with the email and contact information for each candidate who will be on the ballot.***

For additional Duties of Galveston County see section **(5) Fee Schedule of Galveston County** below.

- 2. *Duties and Services of the Entity.*** The Entity will be responsible for performing the duties and services set forth in this section and will consummate this contract **on or before January 31, 2019**. Contracts submitted after this date will require a \$500 fee ***which will be non-refundable regardless of whether the Entity cancels its election.***

- 2.1. Prepare and submit any required submissions to the U.S. Department of Justice under the Federal Voting Rights Act of 1965 for its election and runoff election.
- 2.2. Publish notices of the election in accordance with Section 4.003(a) of the Texas Election Code.
- 2.3. Provide Galveston County with the Entity's requirements for Official Voter Registration lists for early voting and Election Day.
- 2.4. In accordance with Texas Election Code §4.008 as amended, deliver written notice of the election to Galveston County.
- 2.5. It is understood that the Entity may need to modify its election order after January 31, 2019, to reflect the actual early voting and Election Day polling locations once the final determination has been made as to which entities will actually be holding an election.

If the Entity wishes to select additional polling locations within its footprint, it will submit a list and the contact information for each facility to Galveston County by **February 15, 2019**. Regardless of who selects the polling locations the Entity shall comply with Texas Election Code §43.062, and shall notify prospective

voters of the new location by placing a notice at the old polling location and a notice at the new polling location.

[See Section 1.7 for additional information on the selection of countywide polling places]

- 2.6. Provide to Galveston County the language for any ballot propositions, the names of election contests, the names of candidates as they are to appear on the ballot, a copy of a sample ballot, ballot draw information and a completed "Requirements to Program the Ballot" form. These materials will be provided in an electronic form to Galveston County by **no later than February 26, 2019**. All language on the ballot must be provided in both English and Spanish in a Word format. Any other languages required by law, must also be provided in a Word format as well (e.g., Harris County, Chinese and Vietnamese). In addition, the Entity will collect and provide to Galveston County the names, addresses, phone numbers and email addresses of all the candidates who are to appear on its ballot. This information will be used to send candidates copies of the ballot proofs for their review.

[See Section 1.8]

- 2.7. Return to Galveston County, by **March 14, 2019**, confirmation that the sample ballots Galveston County has prepared and provided to the Entity are satisfactory or provide changes that need to be made. Galveston County intends to conduct the L&A test on the Entity's ballot no later than **March 18, 2019**

The Entity shall have a representative present during the testing who will sign an affidavit signifying the ballot proofs are accurate and acceptable to the Entity. If unable to attend, a representative may send a signed electronic response approving the ballot.

[See Section 1.8 for related information on ballot proofing]

- 2.8. Galveston County will be conducting elections for numerous Entities on the same day. The parties understand that each election has its own challenges and requirements and that failure to provide the information outlined in Section 2 of this contract by the dates specified will place an undue burden on Galveston County that may hinder the ability to provide the services to the Entity in a timely and accurate manner. **Should the Entity miss the deadlines, and/or fail to notify the County of any special circumstances (e.g., adding portions of another county to their election, additional languages required, or unopposed candidates on the ballot) there may be additional charges incurred, up to \$1,000.00, to be determined by the Chief Deputy of Elections. Should Galveston County be unable to provide the services in a timely and accurate manner the Entity, to the extent allowed under the Constitution and Laws of the State of Texas, shall hold Galveston County and employees harmless from any election errors and corresponding liability and/or damages that may result, including but not limited to the costs incurred related to an election contest and/or the need to conduct a subsequent election.**
- 2.9. As required by §67.017(b) and the Secretary of State's Office, the Entity must submit an electronic precinct-by-precinct report to the Secretary of State's Office by no later than the 30th day after Election Day.

2.10. Unless otherwise stipulated, Galveston County will transport or have the Presiding Election Judges transport on its behalf, the voting machines and equipment to and from the Entity's early voting and Election Day voting locations.

2.11. Monitor, with the assistance of Galveston County, the overall conduct of its election in Entity's jurisdiction including the observation of the tabulating of the results.

2.12. Entity to pay a \$125 fee per early voting and Election Day polling locations within its jurisdiction for additional support staff to provide the Entity and its Judges election support services throughout the term of this contract.

3. Cancellation of Contract: Except for contracts consummated after **January 31, 2019**, the Entity may cancel this contract without incurring any expenses by notifying Galveston County of its intention to cancel by no later than two (2) business days after its candidates filing deadline of **February 21, 2019**. The Entity will be obligated to pay Galveston County a \$500 fee if cancelled after this grace period.

4. Special Provision: Bilingual Poll Worker Requirements. Galveston County was a party in Civil Action No. 3:07 CV 377 styled "The United States of America, Plaintiff, v. Galveston County, Texas, Defendant in the United States District Court for the Southern District of Texas, Galveston Division". It entered into a Consent Decree that acknowledged it is covered under both Section 4(f)(4) of the Voting Rights Act as amended and 42 U.S.C. §1973(b)(4) Section 4(f)(4) to provide Spanish language written materials and assistance to voters. Galveston also has an obligation to ensure that its polling places and poll workers comply with the Help America Vote Act of 2002 ("HAVA"), 42 U.S.C. §§15301 et. seq. Although this Consent Decree expired December 31, 2010, Galveston County agreed that it is permanently enjoined from:

- a) Failing to provide in Spanish "any registration or voting notices, forms, instructions, assistance, or other materials or information relating to the electoral process, including ballots," that they provide in English as required by Section 4(f)(4) of the Voting Rights Act, 43 U.S.C. 1973b(f)(4); and
- b) Failing to ensure that poll workers provide and receive adequate training regarding (1) the use of providing provisional ballots under Section 302(a) of HAVA; and (2) the display of all HAVA-required signs under Section 302(b) of HAVA.

5. Fee Schedule of Galveston County: Galveston County agrees to perform these services at the following rates:

- a) Provide to the Election Judges all necessary election supplies, which are to be returned to Galveston County after the polls close on Election Night.

Cost: \$50 per kit

- b) Arrange for staff to receive the supplies and equipment being returned by the Election Judges on Election Night.

Cost: Overtime for staff and part time workers hired to provide this service will be evenly split between the entities contracting with Galveston County.

- c) Provide all necessary voting machines and equipment for use at early voting and Election Day locations.

Cost: \$465 per Verity Touch, \$506 per Verity Controller and \$577 per Verity Touch with access.

- d) Transport the voting machines and equipment to and from the voting locations.
Cost: \$125 delivery per location
- e) Program the ballot and conduct the Logic and Accuracy Testing of the counting equipment.
Cost: Determined by the number of contests on the ballot: \$600 for up to ten contests, \$1,200 for up to 20, \$1,800 for up to 30, \$2,450 for up to 40 and \$3,000 for 41 or more contests.
- f) Provide a central counting station, supplies, equipment and the tabulating and supervisory personnel needed to tabulate. Prepare the unofficial tabulation results and unofficial/official canvass report.
Cost: \$400 for use of the equipment plus overtime for county employees doing the tabulation if applicable.
- g) Assist the Entity in the general overall supervision of the election and any subsequent runoff election.
Cost: Included in the 10% election fee
- h) Conduct early voting, Election Day Voting, and bilingual training.
Cost: \$50 per person per class
- i) Two or more electronic poll **pads** will be deployed (at the discretion of the Elections Division) to each polling location.
No Cost
- j) Galveston County will partner with the Entities to determine the polling locations within their jurisdictions.
- k) Hire judges, alternate judges, and clerks that are trained by Galveston County and are registered voters from within one of the jurisdictions holding an election.
Cost: Base cost of \$10 per hour per worker. Any worker who serves more than 40 hours in a given pay week will be compensated at time and a half for the hours served in excess of 40 hours.
- l) Elections Mobile App: Entities contracting elections with Galveston County will have their election information included on the Elections Mobile App.
Cost: up to \$500.
- m) The cost for all printed ballots (ballots by mail, sample ballots and test ballots) is \$.25 per sheet.
- n) Ballots by Mail: Galveston County will provide ballot by mail processing services to the Entity. **The cost for this service is \$3.00 per ballot (\$3.50, if a multi-page ballot).**
- o) The Entity may have an observer present during the tabulation of the votes. The name and contact information of the observer must be provided to and approved by the Presiding Judge of the Central Count Station on the form prescribed by the Texas Secretary of State upon arrival at the location.

6. Compensation, Billing, and Payment. In accordance with Section 31.100(d) of the Texas Election Code the Entity will pay Galveston County the greater of Seventy-Five (\$75.00) Dollars or ten percent (10%) of the total amount of this contract for general supervision of the election. Pursuant to Texas Election Code §31.098, Galveston County may contract with third persons for election services and supplies agreed to herein and the Entity hereby agrees to pay for these third party costs when invoiced by Galveston County.

Galveston County will invoice the Entity for services rendered under this contract. The Entity will make payment to Galveston County in accordance with the terms and provisions of what is commonly referred to as the Texas Prompt Payment Act.

7. Voting System. The Hart Intercivic Verity equipment as approved by the Texas Secretary of State will be the voting system used in providing services under this contract.

8. Authorized Representatives. Galveston County's authorized representative for all purposes of this contract is its Chief Deputy Clerk for Elections.

The Entity's authorized representative for all purposes of this contract is:

Name

Phone #

9. General Provisions. As specified in Texas Election Code §31.096 this contract may not change:

- a) The authority with whom applications of candidates for a place on a ballot are filed;
- b) The authority with whom documents are filed under Texas Election Code S251.001 et. seq.; or
- c) The authority to serve as custodian of voted ballots or other election records.

As set forth in Texas Election Code §31.099 not later than the 10th day after the date this contract is executed Galveston County shall file a copy of this contract with the County Treasurer and the County Auditor.

10. WAIVER OF DAMAGES. The parties acknowledge that the Hart Intercivic Verity System and the programming of paper ballots is highly technical and that it is conceivable that despite the efforts of Galveston County it might fail during an election or might contain errors. The Entity agrees that should the electronic voting system fail, it will not make any claim against Galveston County or any of their full or part-time employees, independent contractors or agents for damages of any kind, including but not limited to any and all costs relating to an election contest and/or costs and damages incurred for having to conduct a second election caused as a result of such failure or error.

The Entity acknowledges that holding multiple simultaneous elections presents logistical problems and other problems over and above a single election. Galveston County and its employees and agents will attempt to help ensure that these simultaneous elections are conducted without error or mishap, but on occasion, errors or mishaps do occur.

Accordingly, the Entity agrees that should an error or mishap occur that it will not make any claim against Galveston County, or their full or part-time employees, independent contractors or agents for damages of any kind including but not limited to any and all costs relating to an election contest and/or costs and damages incurred by the Entity for having to conduct a second election, as a result of such error or mishap.

If legal action is filed against the Entity involving its election and if Galveston County is named as a party to this legal action and the complaint is based solely on allegations made against the Entity, the Entity shall be solely responsible for all costs and defense of that suit. In addition, the Entity shall be required to provide adequate legal counsel for Galveston County and, upon notice to the Entity, Galveston County shall be entitled to settle such claim or legal action upon terms it deems most advantageous to itself.

For purposes of implementing this contract, Galveston County and the Entity designate the following individuals to submit and/or receive information or notices to Galveston County or the Entity:

Galveston County:

Dwight D. Sullivan, County Clerk
Attention: Ernest Murrie, Chief Deputy Clerk for Elections
Galveston County Justice Center
600 59th Street, Suite 2001
Galveston, TX 77551-4180

P.O. Box 17253
Galveston, Texas 77552-7253
409-770-5108
Email: ernest.murrie@co.galveston.tx.us

Entity:

Phone: _____

Email: _____

This contract will be submitted to the Galveston County Commissioners' Court to be placed on the Consent Agenda as a Receive and File Item.

11. Galveston County Title VI Assurance Clause. Galveston County is committed to ensuring that no person, on the ground of race, color, national origin, religion, sex, age, disability or Veteran status, shall be subjected to discrimination, excluded from participation, or denied the benefits of, its programs and activities.

In accordance with this policy Galveston County requires its service providers and contractors to agree that during the performance of this contract the service provider or contractor for itself, its assignees and successors will abide by the following:

Compliance with Non-Discrimination Laws and Regulations. During the performance of this contract, contractor, for itself, its assignees and successors in interest (hereinafter referred to as "contractor") agrees as follows:

- 1) **Compliance with Regulations.** The contractor shall comply with the Regulations relative to nondiscrimination in Federally-assisted programs of the Department of Transportation (hereinafter, DOT) Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time (hereinafter referred to as the Regulations), which are incorporated herein by reference and made a part of this contract.
- 2) **Nondiscrimination.** The contractor, with regard to the work performed by it during the contract, shall not discriminate on the basis of race, color, national origin, religion, sex, age, disability or Veteran status in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor shall not participate either directly or indirectly in the discrimination prohibited by Section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.
- 3) **Solicitations for Subcontractors, Including Procurement of Materials and Equipment.** In all solicitations either by competitive bidding or negotiation made by the contractor for work to be performed under a subcontract, including procurement of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, national origin, religion, sex, age, disability or Veteran status.
- 4) **Information and Reports.** The contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information and its facilities as may be determined by Galveston County or the Texas Department of Transportation to be pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information the contractor shall so certify to Galveston County or the Texas Department of Transportation as appropriate, and shall set forth what efforts it has made to obtain the information.
- 5) **Sanctions for Noncompliance.** In the event of the contractor's noncompliance with the nondiscrimination provisions of this contract, Galveston County shall impose such contract sanctions as it or the Texas Department of Transportation may determine to be appropriate, including, but not limited to:
 - a) withholding of payments to the contractor under the contract until the contractor complies, and/or
 - b) cancellation, termination, or suspension of the contract, in whole or in part.

- 6) **Incorporation of Provisions.** The contractor shall include the provisions of paragraphs (1) through (6) in every subcontract, including procurement of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto. The contractor shall take such action with respect to any subcontract or procurement as Galveston County or the Texas Department of Transportation may direct as a means of enforcing such provisions including sanctions for non-compliance: Provided, however, that, in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the contractor may request Galveston County to enter into such litigation to protect the interests of Galveston County, and, in addition, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

Executed this _____ day of _____, 20____.

Galveston County:

Dwight D. Sullivan
County Clerk

Entity:

Name: _____

- | | |
|---|------------------------------------|
| ☐ City Manager | ☐ Mayor |
| ☐ Superintendent | ☐ President |
| ☐ City Secretary | ☐ Other |
| ☐ Chair County Executive Committee | |

Received and Filed:
Galveston County

Hon. Mark Henry
County Judge
Attest:

Dwight D. Sullivan
County Clerk

Date: _____

Date Copy of Agreement Furnished
to County Treasurer: _____

Date Copy of Agreement Furnished
to County Auditor: _____

CITY OF FRIENDSWOOD ESTIMATE									
SATURDAY, May 2019									
Item	Quantity	Cost	Justice Center		Quantity	Cost	Total	Billable Charges for City of Friendswood	
	Early Voting		Cost	? way split	Election Day				
Equipment									
JBCs Controller	1	\$506.00	\$506.00	\$506.00				\$253.00	Justice Center: 1 JBC @ \$250/? Split
JBCs Controller	1	\$506.00	\$506.00	\$506		\$506.00	\$506.00	\$1,012.00	Friendswood (own equipment)
eSlate Verity Touch	3	\$465.00	\$1,395.00	\$1,395.00				\$697.50	Justice Center: 3 eSlates @ \$750/? Split
eSlate Verity Touch	3	\$465.00	\$1,395.00	\$1,395.00	3	\$1,395.00	\$5,580.00	\$5,580.00	Friendswood
DAU Verity Touch Access	1	\$577.00	\$577.00	\$577.00			\$0.00	\$288.50	Justice Center: 2 DAU @ \$250/? Split
DAUs Verity Touch Access	1	\$577.00	\$577.00	\$577.00	1	\$577.00	\$1,154.00	\$1,154.00	Friendswood
E Poll Books	2	\$0.00	\$0.00	\$0.00		\$0.00	\$0.00	\$0.00	Justice Center: 2 EPB
Epollbooks	2	\$0.00			2	\$0.00	\$0.00	\$0.00	Friendswood
MiFi Units	Includes EV & ED				1	\$37.99	\$37.99	\$19.00	Friendswood
MBBs		\$6.00			200	# of entities	\$1,200.00	\$1,200.00	Shared by ? Entities
We delivered and set up early voting equipment									
Equipment Delivery	1	\$125.00				\$125.00	\$125.00	\$125.00	Friendswood
Subtotal Equipment:							\$8,477.99	\$10,204.00	
Election App							\$500.00	\$500.00	Per entity
Publication Notices [L&A test]		\$58.50		# Entities	?		\$58.50	\$58.50	Split between all ? entities
Sample Ballot printing	98	\$0.25	Entities	?			\$24.50	\$24.50	Split between all ? entities
Printing Ballots by Mail	900	\$0.25			225.00		\$225.00	\$225.00	Friendswood
Mailing Fee for Ballots by Mail	900	\$3.00			2700.00		\$2,700.00	\$2,700.00	Friendswood
Test Ballots	199	\$0.25	Entities	?			\$49.75	\$49.75	Split between all ? entities
Programming Ballot Charges									
1-10 Contests	1					\$600.00	\$600.00	\$600.00	
11-20 Contests						\$1,200.00	\$0.00	\$0.00	
21-30 Contests						\$1,650.00	\$0.00	\$0.00	
31-40 Contests						\$2,450.00	\$0.00	\$0.00	
41+ Contests						\$3,000.00	\$0.00	\$0.00	
Tabulation Charges							\$400.00	\$400.00	
Election Kits	1	\$50.00			1	\$50.00	\$100.00	\$50.00	Friendswood
Subtotal:							\$4,657.75	\$4,607.75	
Training Charges	Trainees	\$50 per person		EVBB/Central Ct					
\$50.00 per person	6	\$300.00				\$0.00	\$300.00	\$150.00	Friendswood
EV Judges & Clerks	588.00	(# of hours)			\$10.00	(\$ per hour)	\$5,880.00	\$2,940.00	Election workers who serve more than 40 hours in a pay week
EV Judges & Clerks (overtime)	96.00				\$15.00		\$1,440.00	\$720.00	receive \$15 per hour for each hour over 40
ED Judges & Clerks	84.00				\$10.00		\$840.00	\$420.00	Friendswood
EV Pickup & Delivery Fee	0				\$25.00		\$0.00	\$0.00	
ED Pickup & Delivery Fee	1				\$25.00		\$25.00	\$12.50	Friendswood
Signature Verification/EVBB				7	\$100.00		\$700.00	\$77.78	7 members @\$100.00 minimum

Central Counting Station				5	\$100.00		\$500.00	\$55.56	5 members @\$100.00 minimum
Part Time Election Judges	\$125.00	# of locations	2			\$250.00	\$125.00	\$125.00	[\$125 per Early Voting and Election Day polling locations within the entity's jurisdiction]
Election Division Staff Overtime					9	\$2,486.18	\$276.24	\$2,486.18	Split between all ? entities
Non-Elections Division County Personnel Overtime Charges		\$1,166.45			9	\$1,166.45	\$1,166.45	\$1,166.45	Split between all ? entities
TOTAL PERSONNEL COSTS:							\$11,252.69	\$8,153.47	

SUBTOTAL OF COST OF THIS ELECTION							\$24,388.43	\$22,965.21	
10% Election Fee							\$2,438.84	\$2,296.52	
TOTAL COST OF THIS ELECTION:							\$26,827.28	\$25,261.73	
ELECTION DIV. STAFF O/T	HRS	RATE			TOTAL	THESE ARE ACTUAL FIGURES FROM A BILLING FOR AN ENTITY FROM A PREVIOUS YEAR.		Friendswood charges	
Shon Fragoso									
Wendi Crabtree	29.5	\$30.65			\$904.18				
Marilyn Richardson		\$24.21			\$0.00				
Cindy Eddy	22.25	\$25.79			\$573.83				
Melvin Buster	22	\$24.21			\$532.62				
Tommy Turnbow	18	\$26.42			\$475.56				
					\$2,486.18				
NON-ELECT. DIV. STAFF O/T	HRS	RATE			TOTAL				
Chatterton									
Clark									
McMeekin					\$0.00				
Edgar									
Goodall									
Gutierrez									
Johnson, B									
Johnson, S									
Jordan									
Linton									
Molis									
Otero									
Roe									
Salinas									
Urbina									
Young					\$0.00				
Security					\$1,166.45				
					\$1,166.45				



FRIENDSWOOD CITY COUNCIL AGENDA ITEM FORM

This form should be completed and forwarded to the City Manager's Office as soon as possible prior to the first date that the item is expected to be placed on the Friendswood City Council agenda.

Date requested for City Council consideration: 02/04/2019

Date Submitted: 01/30/2019

Dept. Clearances: KRH

Prepared by: Rhonda Boskas/Katina Hampton

Subject: Armored Car Services Contract

Originating Department: Admin Services

City Attorney Review: mkf

Proceeding: Ordinances – Discussion & Possible Action

Degree of importance: Critical ☐ Significant ☒ Elective ☐

Expenditure Required: \$6,000*

Amount Budgeted: \$0

Appropriation Required: \$0*

Source of Funds: General Fund

FINANCE APPROVAL: *krh*

MK

Morad Kabiri
City Manager

SUMMARY / ORIGINATING CAUSE

This discussion and possible action item is to request Council approval of a contract between the City and Brinks/Dunbar for armored car service to transport cash deposits from City Hall and Municipal Court at the Public Safety building to the City's depository banking institution.

Staff obtained the list of possible couriers from Wells Fargo (Loomis, Dunbar, Garda and Brinks). Based on past experience with Garda the City has chosen not to get a quote from this company. Subsequently, Brinks and Dunbar have merged to become Dunbar Armored, Inc.

Dunbar offered 2 options:

1. 2 days per week pick-up at 2 locations for \$389.78 plus 10.55% fuel rate
2. 5 days per week at 1 location for \$385.00 plus 10.55% fuel rate

Loomis offered 2 options:

1. 2 days per week pick-up at 2 locations for \$242.48 plus 7% insurance rate and variable fuel rate of 4% – 9%
2. 5 days per week at 1 location for \$606.20 plus fuel rate plus 7% insurance rate and variable fuel rate of 4% – 9%

IMMINENT CONSEQUENCES / BENEFIT TO COMMUNITY

Approving the recommended contract ensures safety and protection of the City's assets.

RECOMMENDATIONS

Staff recommends Council approval of and authorizing the Mayor to sign the contract with Dunbar Armored, Inc. for armored car services.

*As part of our depository contract, Wells Fargo will pay up to \$500 per month for armored car services for the City. Staff would like to utilize this benefit to ensure safety and to protect the assets of the City.

ATTACHMENTS

[Contract-Dunbar](#)



339126

**DUNBAR ARMORED, INC.
SERVICE CONTRACT #48001223**

CONTRACT executed January 30, 2019 by and between:

- | | |
|---|--|
| 1. DUNBAR ARMORED, INC. ("DUNBAR") and
50 SCHILLING ROAD
HUNT VALLEY, MD 21031 | 2. THE CITY OF FRIENDSWOOD ("CUSTOMER")
910 SOUTH FRIENDSWOOD DRIVE
FRIENDSWOOD, TX 77546 |
|---|--|

WITNESSETH

DUNBAR agrees, subject to the Terms and Conditions of the Contract, that it will accept and issue a receipt for sealed and locked containers, containing currency, coin, checks, securities, or any other valuable item(s) from the listed **CUSTOMER** location(s) and deliver such containers in like condition, against receipt to the listed depository, and/or to accept from the listed depository sealed and locked containers for delivery to the listed **CUSTOMER** location(s) in like condition and against receipt therefore. **DUNBAR** may, in its discretion, choose to perform any or all of the Services itself or through its employees, affiliate, agents, or independent subcontractors. Any employee, affiliate, agent or independent subcontractor performing Services shall be entitled to the benefit of every limitation and defense to which **DUNBAR** is entitled hereunder. Notwithstanding the foregoing, **CUSTOMER** shall look solely to **DUNBAR** for reimbursement of any Loss in accordance with the terms of this Agreement.

SCHEDULE OF SERVICE AND SERVICE RATES

(Schedule of Service Continued on Page 2)

This Contract shall be effective February 11, 2019, and shall serve as a temporary contract for a maximum period of thirty (30) days. Upon countersignature by an executive officer at DUNBAR's Headquarters, this Contract becomes a final Contract and shall remain effective in full force and effect for one year from the effective date and thereafter from year-to-year, subject to the right of termination upon either party giving the other party written notice of such intention at least ninety (90) days prior to any anniversary date.

THIS CONTRACT IS SUBJECT TO THE TERMS AND CONDITIONS ATTACHED HERETO.

DUNBAR ARMORED, INC.

THE CITY OF FRIENDSWOOD

Signed by: Ben Pacheco – AE – Code #4872

Customer Signature Authorization

Countersigned by: Seth R. McElroy
SR VP Administration & Marketing

Print or Type Name & Title

Service Days Frequency Legend

<u>WK</u> Weekly	<u>OC</u> On Call
---------------------	----------------------

Attachments

The Following Attachments are Hereby Incorporated in the Contract:

<u> X </u> Schedule of Service	<u> </u> Deposit Verification Rider
<u> </u> Dunbar EZChange Rider	<u> X </u> Terms & Conditions

Service Location(s):

#	Location
1	THE CITY OF FRIENDSWOOD #1 - CITY HALL 910 SOUTH FRIENDSWOOD DRIVE FRIENDSWOOD, TX 77546

#	Location
2	THE CITY OF FRIENDSWOOD #2 - PUBLIC SAFETY BUILDING 1600 WHITAKER DR. FRIENDSWOOD, TX 77546

Services	Service Days (See Legend)							Maximum Shipments	Depository(ies)	Schedule of Rates		
	Su	M	Tu	W	Th	F	Sa					
Deposit Pickup			WK			WK		Cash & Check Combined \$50,000	Wells Fargo Bank Central Cash Vault 1400 McGowen St Houston, Tx 77004	Per Month Per Location Per Holiday Trip Per \$1000 Over Stated Max Amt Per Item Over 3 Items Per Trip Per Minute Over 6 On Premises	\$194.89 \$75.00 \$0.28 \$2.50 \$2.50	
Change Order Delivery			OC			OC		Change Order Per Location \$5,000	Wells Fargo Bank Central Cash Vault 1400 McGowen St Houston, Tx 77004	Included in Monthly Rate Per Item Over 3 Items Per Trip	\$0.00 \$2.50	

DUNBAR agrees to provide **CUSTOMER** with a receipt book and an initial supply of scanning cards at no cost to the **CUSTOMER**. Replacement receipt books and scanning cards will be provided at **DUNBAR**'s standard fees for such supplies.

Excess declared amounts will be transported at the rate stated above per thousand. It is understood and agreed that **CUSTOMER** will notify **DUNBAR** prior to said amounts being shipped. This notification may take place at the point when the **DUNBAR** guard signs for said shipment and its "said to contain" value. **DUNBAR**'s liability for excess cash and checks shall remain consistent with the terms and conditions as set forth in the Contract. Excess cash will be fully insured; checks will be subject to reconstruction.

Holidays: On Call

Excluding: New Year's, Easter, Thanksgiving, Christmas

Texas License #B06573 Issued By:

Texas Board of Private Investigators and Private Security Agencies

313 East Anderson Lane, Suite 200, Austin, TX 78752 / (512) 463-5545

TERMS AND CONDITIONS

1. DUNBAR represents that it carries insurance with a responsible insurance company covering its liability as stated in this Contract for loss of or damage to property consigned to it hereunder and that it carries insurance which, subject to the terms and limits of the Contract or Contracts pertaining thereto, covers liability to third persons for damage incurred to them by reason of accidents for which DUNBAR is legally responsible and DUNBAR agrees to keep such insurance in force during the full life of this Contract.
2. The maximum liability for any cargo loss for property consigned to DUNBAR hereunder shall be the lesser sum of the liability assumed in this Contract as stated on the Schedule of Service and Service Rates, the value as stated in DUNBAR'S receipt for the sealed bags, packages or cassettes (containers) accepted or the actual cash value of any property lost or damaged. DUNBAR shall not be liable for any special, consequential or incidental losses or damage, including loss of interest, under any theory of liability.
3. Responsibility of DUNBAR for containers under this Contract shall begin when said containers have been accepted and receipted for by an AUTHORIZED EMPLOYEE of DUNBAR. Responsibility of DUNBAR for containers under this Contract shall end when said containers have been accepted and receipted for by the consignee or upon return to the shipper. If for any reason delivery to the consignee may not be completed, the said containers shall be returned to shipper. DUNBAR uses sophisticated scanners with barcode technology and tracking capability. It is understood and agreed that DUNBAR retains the right to provide CUSTOMER access to electronic signatures in lieu of hard copy receipts.
4. CUSTOMER agrees that all shipments of monies, notes, securities and other valuable property shall be contained in securely locked or sealed containers at the time of delivery to DUNBAR. DUNBAR shall not be obligated to receive any container not properly locked or sealed to its satisfaction. In the event that any container delivered to DUNBAR is not properly locked or sealed to its satisfaction, DUNBAR shall under no circumstances be liable or responsible for any shortage claimed with respect to the contents of such container. CUSTOMER further agrees that DUNBAR shall not be liable for any mysterious disappearance of, shortage of, or damage to the contents of any container unless the container was properly sealed at the time of delivery to DUNBAR and shows evidence of tampering at the time DUNBAR delivers said container to the consignee and the consignee immediately notes in writing the evidence of tampering on DUNBAR'S receipt document. Absent notation on DUNBAR'S receipt document by the consignee at the time of receipt, DUNBAR shall have no liability to CUSTOMER for sealed containers received by the consignee.
5. CUSTOMER agrees to maintain a complete record as to maker and amount of all checks placed in any shipment given to DUNBAR and in case of loss, or damage, to promptly, diligently and completely cooperate with DUNBAR in the identification and replacement of lost, destroyed or stolen checks contained in any such shipment. Complete cooperation shall include, but not be limited to, requests by CUSTOMER to makers of the missing checks to issue duplicates and in the event the makers refuse to do so, then to assert all its legal and equitable rights against said makers or to subrogate such rights to DUNBAR and its assigns. DUNBAR'S liability in the event of loss, destruction or theft of checks shall in all events be limited to payment for the reconstruction of such checks. Notwithstanding the foregoing, reconstruction cost shall be limited to \$25,000 per occurrence.
6. Upon discovery of a claim for loss or damage under this Contract, CUSTOMER shall promptly report the same to the appropriate police authorities and shall maintain and preserve all evidence. Within ten (10) days after discovery of any loss, but in no event more than thirty (30) days after delivery to DUNBAR of the funds, securities, instruments and/or valuable articles in connection with such claim is asserted, CUSTOMER shall give notice of claim in writing to DUNBAR. If the CUSTOMER fails to comply with the conditions of this paragraph 6, CUSTOMER agrees that all claims against DUNBAR relating to the lost or damaged items are deemed to be waived and released. Within thirty (30) days after the giving of written notice of any claim for loss or damage under this Contract, CUSTOMER shall furnish to DUNBAR detailed written proof of such loss or damage in form satisfactory to DUNBAR'S insurer. CUSTOMER agrees to cooperate with and assist DUNBAR'S insurer in its adjustment of any loss. No action, suit or other proceeding to recover from any such loss or damage shall be maintained against DUNBAR unless CUSTOMER complies with all of the terms and conditions of this Contract, and unless such proceeding is commenced within twelve (12) months of the day of receipt by DUNBAR of the funds, securities, instruments and/or valuable articles with respect to which such suit, action or proceeding shall be brought. If it is determined that any of the provisions of this paragraph are invalid, then the notice requirements and the time for suit stated herein shall be the shortest limit of time allowable under applicable law. This Contract and all claims hereunder will be governed by the laws of the State of Texas, and all claims, suits, or proceedings brought against DUNBAR to recover for loss or damage must be brought in a court within the jurisdiction Galveston County, Texas.
7. It is expressly agreed by the CUSTOMER that the provisions of this Contract dealing with the total aggregate value to be accepted by DUNBAR from the CUSTOMER for delivery to the Depository, or from the Depository for delivery to the CUSTOMER, may not be waived or amended by any employee or agent of DUNBAR, except with the written consent of a corporate officer of DUNBAR. DUNBAR will not be liable for loss or damage to property or money consigned to it in excess of the maximum liability which DUNBAR agrees to accept for consignment under this Contract as stated in the Schedule of Service and Service Rates, unless this Contract has an Excess Liability clause. CUSTOMER understands that additional liability coverage is available and can be adjusted by Endorsement to this Contract. Changes in liability may result in adjustment of fees.
8. It is understood and agreed that DUNBAR shall not be responsible for any loss or damage caused by hostile or warlike action or any governmental seizure or by atomic weapons, nuclear reaction or radiation or radioactive contamination, whether controlled or uncontrolled, whether such loss be direct or indirect, proximate or remote. The phrase "hostile or warlike action or governmental seizure" is understood by CUSTOMER and DUNBAR to incorporate the provisions of the War Exclusion Clause adopted by the Inland Marine Underwriters and filed by the Inland Marine Insurance Bureau in all states.
9. DUNBAR shall not be liable for nonperformance or delays not caused by its fault or neglect, or for nonperformance or delays caused by strikes, riots, insurrection, acts of God or the public enemy, or means beyond its control.
10. In the event CUSTOMER issues a purchase order or other similar document in connection with the service to be provided in accordance with the Contract, it shall be for CUSTOMER'S internal purposes only and, therefore, even if it is acknowledged by DUNBAR, the terms and conditions of such document will have no effect on this Contract and the terms and conditions of this Contract shall nevertheless be controlling.
11. DUNBAR makes no warranties, express or implied, and expressly disclaims any and all warranties, except as stated herein.
12. An interest charge of one and one half percent (1 1/2%) per month of the amount unpaid, or such lesser rate as required by law, is due and payable to DUNBAR on all invoices not paid in full within thirty (30) days of the invoice date. As to invoices remaining unpaid beyond thirty (30) days, CUSTOMER agrees to pay, in addition to all service charges previously accrued, all DUNBAR'S costs of collection.
13. DUNBAR shall have the right to increase the charges provided for herein at any time after the expiration of one (1) year from the effective date of this Contract upon giving CUSTOMER written notice thirty (30) days in advance of such increase. Notwithstanding the foregoing, the rates for service may be increased in interim periods before the expiration of one (1) year from the effective date of this Contract and with reasonable written notice to CUSTOMER if there is a change in economic conditions arising out of any energy (fuel) or insurance crisis which causes an appreciable increase in DUNBAR'S cost of performing services under this Contract.
14. The provisions of this Agreement shall be binding upon the respective successors and assigns of the parties hereto, including any successor by way of any merger, consolidation, reorganization or other transaction involving any party hereto and/or its affiliates.
15. DUNBAR agrees to provide CUSTOMER with a receipt book and an initial supply of scanning cards at no cost to the CUSTOMER. Replacement receipt books and scanning cards will be provided at DUNBAR'S standard fees for such supplies.
16. CUSTOMER agrees that CUSTOMER has NO right to offset amounts owed to DUNBAR.
17. CUSTOMER understands and agrees that DUNBAR is entering this Contract to provide services outlined herein subject to the terms and conditions stated above. DUNBAR accepts the duties and responsibilities of this Contract only with the acceptance of and compliance with the terms and conditions stated above. Any claims made by CUSTOMER must be subject to these conditions, whether filed under contract, tort, warranty, strict liability, bailment, conversion, or any other theory of liability.

Any changes to the above Terms and Conditions are subject to approval of DUNBAR'S executive management at its Headquarters.

DUN162REV.09/12



FRIENDSWOOD CITY COUNCIL AGENDA ITEM FORM

This form should be completed and forwarded to the City Manager's Office as soon as possible prior to the first date that the item is expected to be placed on the Friendswood City Council agenda.

Date requested for City Council consideration: February 4, 2019

Date Submitted: January 24, 2019

Dept. Clearances: Patrick Donart

Prepared by: Patrick Donart

Originating Department: PW

Subject: Sanitary Sewer Assessment – Phase V & VI

Proceeding: D & PA

City Attorney Review: mkf

Degree of importance: Critical ☐ Significant ☒ Elective ☐

Expenditure Required: \$274,313

Amount Budgeted: \$275,000

Appropriation Required: \$274,313

Source of Funds: 2018 Water &
Sewer Revenue Bond

FINANCE APPROVAL: *krh*

MK

Morad Kabiri
City Manager

SUMMARY / ORIGINATING CAUSE

Staff has been working with the Gulf Coast Waste Disposal Authority on increasing capacity at the existing Blackhawk Waste Water Treatment Facility. In the Fall of 2014, the plant exceeded the permit for two hour peak flow. The primary reason for the permit break was the excessive inflow and infiltration into the sanitary sewer system, which in turn impacts the plant. The City of Friendswood does have a majority share of the capacity of the plant and contributes the most flow.

In March of 2015, City Council authorized the Sanitary Sewer Assessment for flow monitoring by RJN Group conducted strategically across the City (Phase I). In April of 2016, City Council authorized Phase II for in-depth evaluation of Basin's 8 and 18. In February of 2017, City Council authorized Phase III for the engineering design of the improvements to these basins. Advertising of those plans for construction is anticipated in February; Phase IV.

Phases V and VI are planned to be evaluated by RJN Group. This project will take place in Basins 1, 14, and 16. RJN Group will conduct approximately 630 manhole inspections, smoke testing on approximately 82,500 linear feet of sanitary sewer, and we will conduct dyed water test, Closed Circuit television inspections, and light cleaning of lines in the basins.

IMMINENT CONSEQUENCES / BENEFIT TO COMMUNITY

The study is intended to enhance the City's sanitary sewer service capabilities.

RECOMMENDATIONS

Staff recommends Council approve a contract with RJN Group for engineering services on the Sanitary Sewer Assessment – Phase V and VI, authorizing the appropriation of funds and authorizing the Mayor to execute the contract.

ATTACHMENTS

[RJN – Phase V and VI Engineer Professional Services Agreement](#)

THE STATE OF TEXAS

§

§

COUNTY OF GALVESTON

§

**CONTRACT FOR
PROFESSIONAL SERVICES - ENGINEER**

THIS AGREEMENT, entered into as of this 4th day of February, 2019, by and between the City of Friendswood, Texas (hereinafter called the "CITY") acting herein by its Mayor, duly authorized by resolution of the City Council of the City of Friendswood and RJN Group, 12160 Abrams Road, Suite 400, Dallas, TX 75243 (hereinafter called the "ENGINEER") acting herein by Daniel Jackson, Vice President hereunto duly authorized:

WITNESSETH THAT:

WHEREAS, the CITY desires to engage the ENGINEER to (1) render certain technical and professional services hereafter described in "Scope of Services" or (2) perform certain work hereafter described in "Scope of Services" for the project briefly described as Sanitary Sewer Assessment - Phase V & VI: NOW, THEREFORE, the Parties hereto do mutually agree as follows:

ARTICLE I: EMPLOYMENT OF ENGINEER

The CITY hereby agrees to engage the ENGINEER and the ENGINEER hereby agrees to perform the "Scope of Services" hereinafter set forth. This contract shall be performed in Galveston County, Texas.

ARTICLE II: SCOPE OF SERVICES

Engineering services in connection with preparation of plans and specifications and construction phase services including, but not limited to, all necessary design, surveying, plans, and specifications for Sanitary Sewer Assessment - Phase V & VI

The ENGINEER shall also prepare detailed cost estimates of authorized construction, and shall use reasonable skill and care befitting the profession in preparing cost estimates that shall reflect current, local construction costs or current wage rate.

The services rendered by ENGINEER for the Project to be designed for construction are divided into three (3) distinct and sequential phases as follows:

Preliminary Phase – Preliminary studies, layouts, and cost estimates

Design Phase – Preparation of plans, specifications and contract documents

Construction Phase – CITY’S representative during construction

The work is further described in detail on Attachment A – RJN Group proposal dated January 3, 2019 and shall include a proposed schedule for design of the project.

The ENGINEER shall review submittals, substitutions, pay requests and/or change order requests and make recommendations to the CITY. The ENGINEER has no authority to approve any changes to the Construction Documents, Design, Materials, Contract Amount, or Contract Time nor make any other decisions on behalf of the CITY, only the CITY has this authority, and the ENGINEER’S responsibilities are in an advisory capacity only.

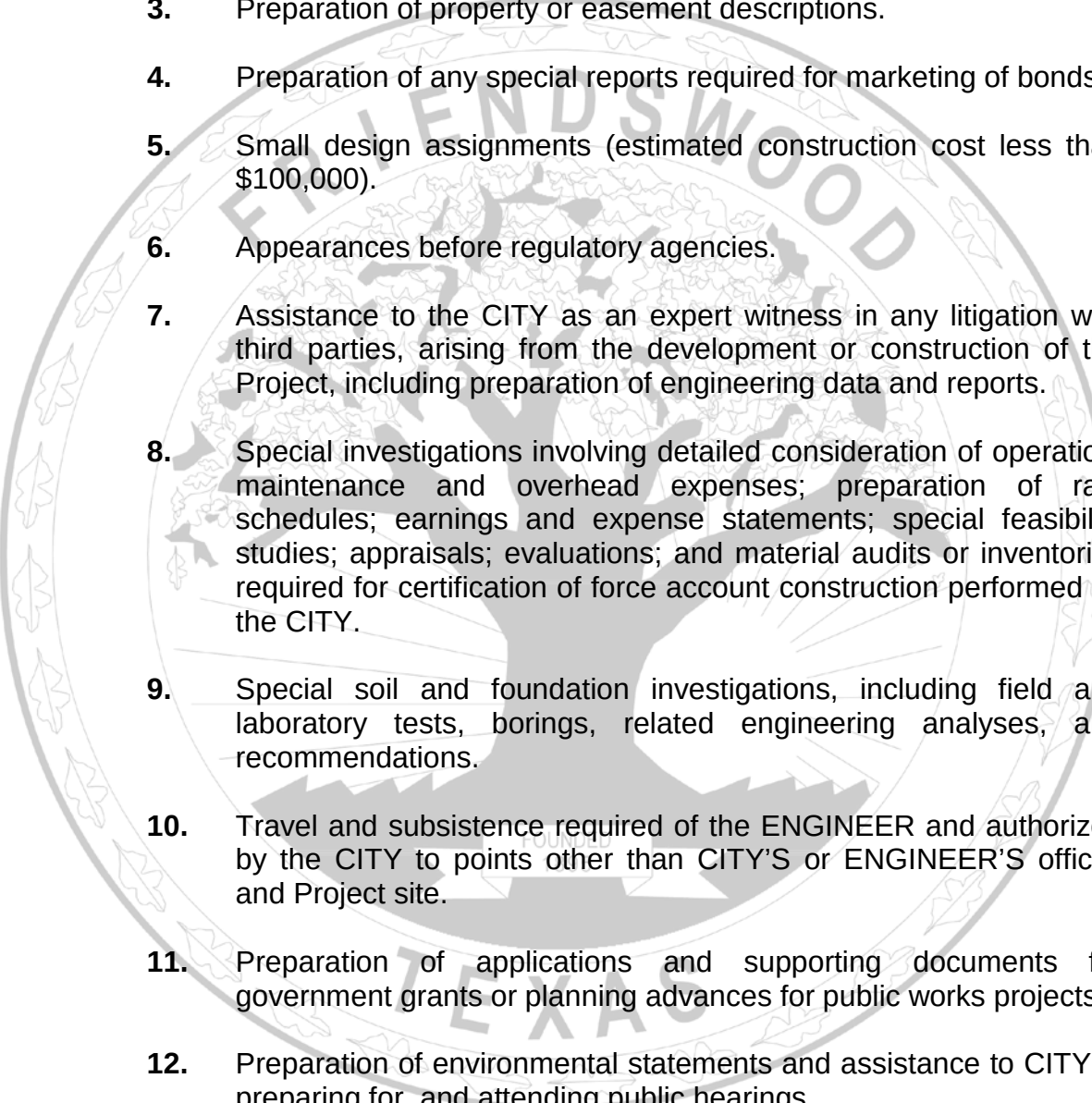
Certain elements of the engineering work shall be performed as Basic Services; others shall be performed as Additional Services. Those elements of the engineering work which cannot be accurately pre-determined or controlled entirely by the ENGINEER shall be performed as Additional Services.

A. BASIC SERVICES:

1. Provide Project Management services to direct, supervise and coordinate the various items of work within the Project Design, including the review of activities of subcontracted engineers and services.
2. Attend preliminary conference with the CITY and other interested parties regarding the project in order to further refine the work.
3. Establish the scope of any soil and foundation investigations or any special surveys and tests which, in the opinion of the ENGINEER, may be required, and arrange for such work to be done, for the CITY’S account.
4. Prepare a preliminary engineering report on the project in sufficient detail to indicate clearly the problems involved and the alternate solutions available to the CITY, including preliminary layouts, and cost estimates, and setting forth clearly the ENGINEER’S recommendations.

B. ADDITIONAL SERVICES

All work performed by ENGINEER at request of CITY which is not included in the Basic Services defined above, shall constitute Additional Services. Unless included in said Basic Services, Additional Services may include but are not limited to the following:

- 
1. Studies, tests, and process determination to establish basis of design for water and waste treatment facilities.
 2. Land surveys, and establishment of boundaries and monuments, and related office computation and drafting.
 3. Preparation of property or easement descriptions.
 4. Preparation of any special reports required for marketing of bonds.
 5. Small design assignments (estimated construction cost less than \$100,000).
 6. Appearances before regulatory agencies.
 7. Assistance to the CITY as an expert witness in any litigation with third parties, arising from the development or construction of the Project, including preparation of engineering data and reports.
 8. Special investigations involving detailed consideration of operation, maintenance and overhead expenses; preparation of rate schedules; earnings and expense statements; special feasibility studies; appraisals; evaluations; and material audits or inventories required for certification of force account construction performed by the CITY.
 9. Special soil and foundation investigations, including field and laboratory tests, borings, related engineering analyses, and recommendations.
 10. Travel and subsistence required of the ENGINEER and authorized by the CITY to points other than CITY'S or ENGINEER'S offices and Project site.
 11. Preparation of applications and supporting documents for government grants or planning advances for public works projects.
 12. Preparation of environmental statements and assistance to CITY in preparing for, and attending public hearings.
 13. Services after issuance of Certificate of Substantial Completion.
 14. Services to investigate existing conditions or facilities or to make measured drawings thereof, or to verify accuracy of drawings or other information furnished by CITY.

15. Additional or extended services during construction made necessary by work damaged by fire or other cause during construction, defective or neglected work of contractor; services rendered after prolongation of construction contract time by more than twenty percent (20%); acceleration of work schedule involving services beyond normal working hours; or default under construction contract due to delinquency or insolvency.
16. Providing any other service not otherwise included in this Agreement or not customarily furnished in accordance with generally accepted engineering practice.
17. Any other special or miscellaneous assignments specifically authorized by CITY.
18. Provide consultation for replacement of the Work resulting from fire or other causes during construction.

ARTICLE III: TIME OF PERFORMANCE

ENGINEER shall proceed immediately upon execution of this Contract with performance of the services called for under the Basic Services with completion within Three Hundred (300) calendar days after execution, unless delayed by causes outside the control of ENGINEER, and shall proceed with subsequent work only on authorization by CITY. ENGINEER shall immediately submit to CITY in writing evidence of delay satisfactory to the CITY'S reasonable discretion, upon which an extension of time equal to the period of actual delay, if approved by the CITY, shall be granted in writing.

ARTICLE IV: INFORMATION AND SERVICES TO BE FURNISHED ENGINEER

It is agreed that the CITY shall furnish, without charge, for the purpose of the Contract, information, data, reports, records, and maps as are existing, and available, for the carrying out of the work of the ENGINEER as outlined under "Scope of Services"; provided, however, the CITY makes no representation or warranty regarding the reliability of any such information, data, reports or maps. The CITY its agencies shall cooperate with the ENGINEER and will, to the fullest extent reasonably practicable, facilitate the performance of the work described in this Contract.

ARTICLE V: COMPENSATION AND METHOD OF PAYMENT

A. COMPENSATION

It is agreed that total fees for Basic Services for the work as described in Attachment A hereto (including subcontracted Engineering and other professional services) shall not exceed the sum of Two Hundred Seventy-Four Thousand Three Hundred Thirteen Dollars and No Cents (\$274,313) unless specifically authorized by the CITY.

B. PAYMENT

ENGINEER shall invoice CITY monthly for its services and charges incurred by ENGINEER for services performed under the direction and control of ENGINEER as described herein.

CITY agrees to pay ENGINEER at its office the full amount of each such invoice upon receipt or as otherwise specified in this Agreement. A charge of one percent per month shall be added to the unpaid balance of invoices not paid within thirty-one days (31 D) after date of invoice. The ENGINEER shall pay its subcontractors no later than the tenth day after he receives payment as required under Chapter 2251, Texas Local Government Code.

1. REIMBURSABLES – as stated in Attachment A of ENGINEER'S Proposal and shall not exceed the limits proposed, All reimbursables shall be accompanied with documentation to expenses incurred, and shall only be paid with the approval of the CITY.
2. SITE VISITS – as stated at rate and frequency in Attachment A and approved by the CITY.
3. ENGINEER shall not charge for corrections of errors and omissions, by the ENGINEER, to the design of the project.
4. ENGINEER shall be responsible for large number of change orders due to errors or omissions of Design and Construction Documents.

ARTICLE VI: RECORDS

ENGINEER shall keep accurate records, including time sheets and travel vouchers, of all time and expenses allocated to performance of Contract work. Such records shall be kept in the office of the ENGINEER for a period of not less

than five years (5 Yr) and shall be made available to the CITY for inspection and copying upon reasonable request.

ARTICLE VII: OWNERSHIP OF DOCUMENTS

All documents, including original drawings, estimates, specifications, field notes and data are the property of CITY. ENGINEER may retain reproducible copies of drawings and other documents for its use.

All documents, including drawings and specifications prepared by ENGINEER are instruments of service in respect to the project. They are not intended or represented to be suitable for reuse by CITY or others on extensions of the Project or on any other project. Any reuse without written verification or adaption by ENGINEER for the specific purpose intended shall be at CITY'S sole risk and without liability or legal exposure to ENGINEER. Any such verification or adaption shall entitle ENGINEER to further compensation at rates to be agreed upon by CITY and ENGINEER.

ARTICLE VIII: INSURANCE

All insurance shall be written by an insurer licensed to conduct business in the State of Texas, unless otherwise permitted by CITY. The City of Friendswood, its officers, agents and employees shall be named as an additional Insured. The ENGINEER shall, at his own expense, purchase, maintain and keep in force insurance that shall protect against injury and/or damages which may arise out of or result from operations under this contract, whether the operations be by himself or by any agent, subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable, of the following types and limits (no insurance policy or certificate of insurance required below shall contain any aggregate policy year limit unless a specific dollar amount (or specific formula for determining a specific dollar amount) aggregate policy year limit is expressly provided in the specification below which covers the particular insurance policy or certificate of insurance):

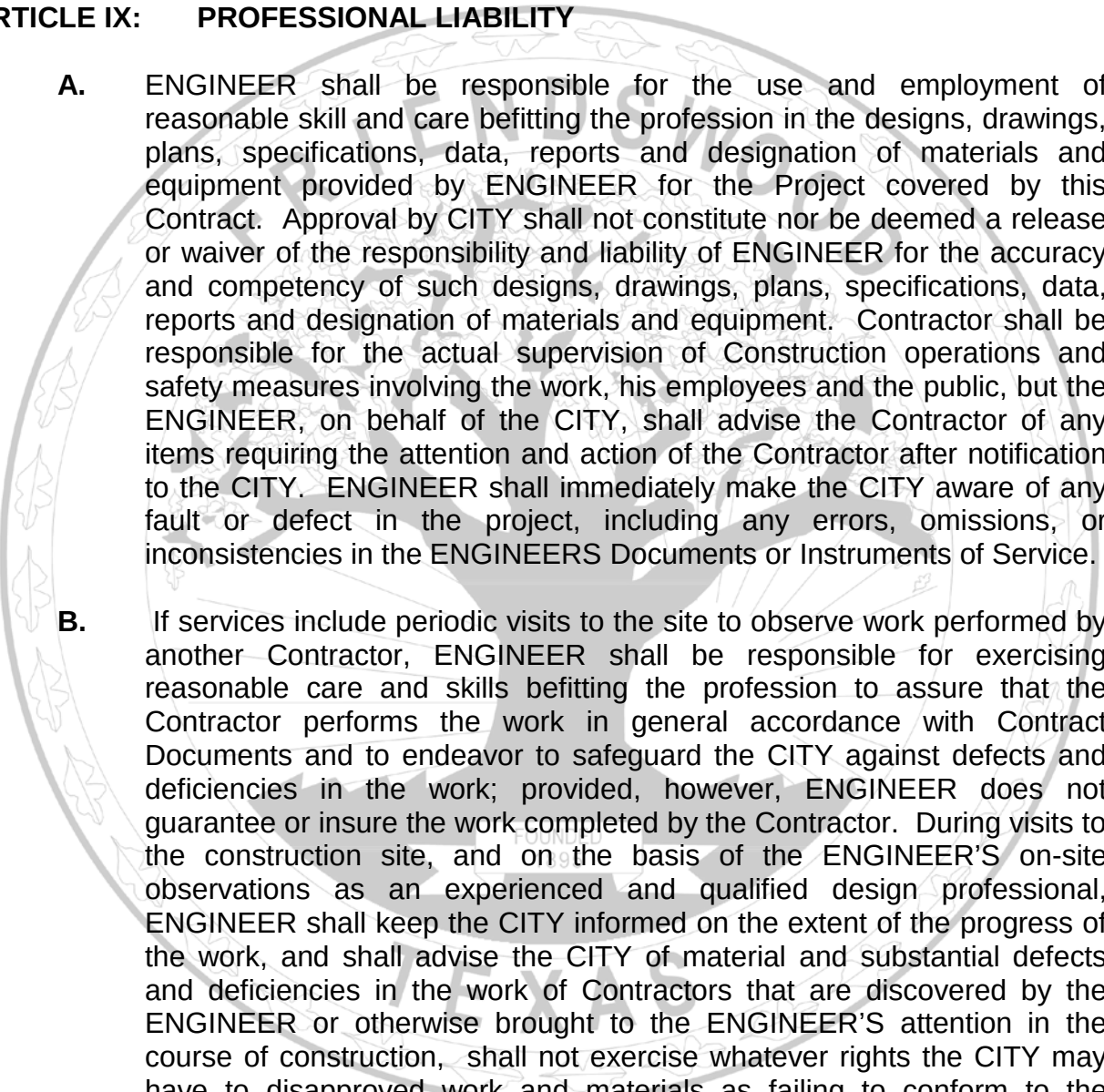
- A.** Worker's Compensation Insurance (with Waiver of Subrogation in favor of the City of Friendswood, its officers, agents and employees), with statutory limits.
- B.** Commercial General Liability occurrence type insurance (No "XCU" restrictions shall be applicable). Products/completed operations coverage must be included.
 - 1.** Bodily injury five hundred thousand dollars (\$500,000) single limit per occurrence or five hundred thousand dollars (\$500,000) each person/ five hundred thousand dollars (\$500,000) per occurrence.

2. Property Damage one hundred thousand dollars (\$100,000) per occurrence.
 3. Minimum aggregate policy year limit one million dollars (\$1,000,000).
- C.** Commercial Automobile Liability Insurance (including owned, non-owned and hired vehicles coverages).
1. Minimum combined single limit of five hundred thousand dollars (\$500,000) per occurrence for bodily injury and property damage.
 2. If individual limits are provided minimum limits are three hundred thousand dollars (\$300,000) per person, five hundred thousand dollars (\$500,000) per occurrence for bodily injury and one hundred thousand dollars (\$100,000) per occurrence for property damage.
- D.** Contractual Liability Insurance covering the indemnity provision of this contract in the same amount and coverage as provided for Commercial General Liability Policy, specifically referring to this Contract by date, job number and location.
- E.** ENGINEER also agrees to maintain Professional Liability Insurance coverage of one million dollars (\$1,000,000) minimum per occurrence/claim/policy year aggregate limits to protect the CITY against damages arising from the ENGINEER'S negligent or wrongful act or omission in the performance of services under this Contract. Coverage shall continue for a minimum of two years (2 Yr) after the ENGINEER'S assignment under this Contract is completed. The deductible on the policy for Professional Liability shall not exceed twenty-five thousand dollars (\$25,000) unless specifically approved by the CITY.

ENGINEER shall cause ENGINEER'S insurance company or insurance agent to fill in all information required (including names of insurance agencies, ENGINEER and insurance companies, and policy numbers, effective dates and expiration dates, and provide proof that the CITY is an additional insured) and to date and sign and do all other things necessary to complete and make into a valid certificate of insurance the CERTIFICATE OF INSURANCE Form attached to and made a part of this Contract, and pertaining to the above listed Items A, B, C, D, and E; and before commencing any of the work and within the time otherwise specified, ENGINEER shall file said completed Form with the CITY. None of the provisions in said Form shall be altered or modified in any respect except as herein expressly authorized. Said CERTIFICATE OF INSURANCE Form contains a provision that coverages afforded under the policies shall not be altered, modified or cancelled unless at least fifteen

days (15 D) prior written notice has been given to the CITY. ENGINEER shall also file with the CITY valid CERTIFICATE(s) OF INSURANCE on like form from or for all Subcontractors and showing the Subcontractor(s) as the Insured. Said completed CERTIFICATE OF INSURANCE Form(s) shall in any event be filed with CITY not more than ten days (10 D) after execution of this Contract.

ARTICLE IX: PROFESSIONAL LIABILITY

- 
- A.** ENGINEER shall be responsible for the use and employment of reasonable skill and care befitting the profession in the designs, drawings, plans, specifications, data, reports and designation of materials and equipment provided by ENGINEER for the Project covered by this Contract. Approval by CITY shall not constitute nor be deemed a release or waiver of the responsibility and liability of ENGINEER for the accuracy and competency of such designs, drawings, plans, specifications, data, reports and designation of materials and equipment. Contractor shall be responsible for the actual supervision of Construction operations and safety measures involving the work, his employees and the public, but the ENGINEER, on behalf of the CITY, shall advise the Contractor of any items requiring the attention and action of the Contractor after notification to the CITY. ENGINEER shall immediately make the CITY aware of any fault or defect in the project, including any errors, omissions, or inconsistencies in the ENGINEERS Documents or Instruments of Service.
- B.** If services include periodic visits to the site to observe work performed by another Contractor, ENGINEER shall be responsible for exercising reasonable care and skills befitting the profession to assure that the Contractor performs the work in general accordance with Contract Documents and to endeavor to safeguard the CITY against defects and deficiencies in the work; provided, however, ENGINEER does not guarantee or insure the work completed by the Contractor. During visits to the construction site, and on the basis of the ENGINEER'S on-site observations as an experienced and qualified design professional, ENGINEER shall keep the CITY informed on the extent of the progress of the work, and shall advise the CITY of material and substantial defects and deficiencies in the work of Contractors that are discovered by the ENGINEER or otherwise brought to the ENGINEER'S attention in the course of construction, shall not exercise whatever rights the CITY may have to disapproved work and materials as failing to conform to the Contract Documents.
- C.** In connection with the services of Resident Project Representatives, ENGINEER shall use the usual degree of care and prudent judgment in the selection of competent Project Representatives, and the ENGINEER shall use its best efforts to see that the Project Representatives are on the

job to perform their required duties.

- D.** In performing these services, the ENGINEER shall not be responsible for the actual supervision of construction operations or for the safety measures that the Contractor takes or should take, except as stipulated in the Scope of Services.

ARTICLE X: INDEMNIFICATION

ENGINEER shall comply with the requirements of all applicable laws, rules, and regulations in connection with the services of ENGINEER and shall exonerate, indemnify, defend, and hold harmless the CITY, its officers, agents and all employees from any and all liability, loss or damage arising out of noncompliance with such laws, rules and regulations, without limitation. ENGINEER shall assume full responsibility for payments of Federal, State and Local taxes or contributions imposed or required under the Social Security, Worker's Compensation, and Income Tax Laws with respect to ENGINEER'S employees. Further, ENGINEER shall exonerate, indemnify, defend, and hold harmless the CITY, its officers, agents and all employees from any and all liability, loss, damages, expenses or claims arising out of any act or omission, intentional tort, or failure to pay a subcontractor or supplier of ENGINEER, its officers, agents and employees in connection with any of the work performed or to be performed under this Contract by ENGINEER or as a result of ENGINEER'S failure to use and employ reasonable skill and care befitting the profession in accordance with Paragraph 9 of this Contract. Further, ENGINEER shall exonerate, indemnify, defend, and hold harmless the CITY, its officers, agents, and all employees from any and all liability, loss, damages, expenses or claims for infringement of any intellectual property arising out of the use of any plans, design, drawings, or specifications furnished by ENGINEER in the performance of this Contract.

The foregoing indemnification provision shall apply to ENGINEER regardless of whether or not said liability, loss, damages, expenses, or claims is caused in part by a party indemnified hereunder.

ARTICLE XI: ADDRESS OF NOTICE AND COMMUNICATIONS

CITY:	ENGINEER:
CITY OF FRIENDSWOOD	RJN Group
910 S. Friendswood Drive	12160 Abrams Road, Suite 400
Friendswood, Texas 77546	Dallas, TX 75243
Attn: Patrick Donart, PE	Attn: Daniel Jackson, PE
Title: Public Works Director/ City Engineer	Title: Vice President

All notices and communications under this Contract shall be mailed or delivered to CITY and ENGINEER at the above addresses, respectively.

ARTICLE XII: CAPTIONS

Each paragraph of this Contract has been supplied with a caption to serve only as a guide to the contents. The caption does not control the meaning of any Paragraph or in any way determine its interpretation or application.

ARTICLE XIII: SUCCESSORS AND ASSIGNMENTS

The CITY and the ENGINEER each binds themselves and their successors, executors, administrators, and assigns to the other party of this Contract and to the successors, executors, administrators and assigns of such other party, in respect to all covenants of this Contract. Except as above, neither the CITY nor the ENGINEER shall assign, sublet, or transfer its interest in this Contract without the written consent of the other. Nothing herein shall be construed as creating any personal liability on the part of any officer or agent of any public body which may be a party hereto.

ARTICLE XIV: TERMINATION OF CONTRACT FOR CAUSE

If, through any cause, the ENGINEER shall fail to fulfill in a timely and proper manner its obligations under this Contract, or if the ENGINEER shall violate any of the covenants, agreements, or stipulations of this Contract, the CITY shall thereupon have the right to terminate this Contract by giving written notice to the ENGINEER of such termination and specifying the effective date thereof, at least five days (5 D) before the effective date of such termination. In such event, all finished or unfinished documents, data, studies, survey, drawings, maps, models, photographs, and reports prepared by the ENGINEER under this Contract shall become the property of the CITY, and the ENGINEER shall be entitled to receive just and equitable compensation for any work satisfactorily completed hereunder.

Notwithstanding the above, the ENGINEER shall not be relieved of liability to the CITY for damages sustained by the CITY by virtue of any breach of the Contract by the ENGINEER and the CITY may withhold any payment to the ENGINEER for the purpose of setoff until such time as the exact amount of damages due the CITY from the ENGINEER is determined.

ARTICLE XV: TERMINATION FOR CONVENIENCE OF THE CITY

The CITY may terminate this Contract at any time by giving at least thirty days (30 D) notice in writing to the ENGINEER. If the Contract is terminated by the CITY as provided herein, the ENGINEER shall be paid for the time provided and expenses incurred up to the termination date. If this Contract is terminated due to the fault of the ENGINEER, other terms and conditions contained in Paragraph 14 of this Contract relative to termination shall apply.

ARTICLE XVI: CHANGES

The CITY may, from time to time, request changes in the scope of the services to be performed by the ENGINEER under this Contract. Such changes, including any increase or decrease in the amount of the ENGINEER'S compensation, which are mutually agreed upon by and between the CITY and ENGINEER shall be incorporated in written amendments to this Contract.

ARTICLE XVII: PERSONNEL

- A.** The ENGINEER represents that it has, or shall secure at its own expense, all personnel required in performing the services under this Contract. Such personnel shall not be employees of or have any contractual relationship with the CITY.
- B.** All of the services required hereunder shall be performed by the ENGINEER or under its supervision and all personnel engaged in the work shall be fully qualified and, if applicable shall be authorized or permitted under State and local law to perform such services.
- C.** None of the work or services covered by this Contract shall be subcontracted without the prior written approval of the CITY. Any work or services subcontracted hereunder shall be specified by written Contract or agreement and shall be subject to each provision of this Contract.

ARTICLE XVIII: REPORTS AND INFORMATION

The ENGINEER shall, at such times and in such forms as the CITY may require, furnish the CITY such periodic reports as it may request pertaining to the work or services undertaken pursuant to this Contract, the costs and obligations incurred or to be incurred in connection therewith, and any other matters covered by this Contract.

ARTICLE XIX: CIVIL RIGHTS

The ENGINEER shall comply with applicable requirements of Chapter 106 Civil Practice and Remedies Code of the State of Texas which prohibits discrimination on the grounds of race, religion, color, sex or national origin, while performing work on behalf of the CITY.

The ENGINEER shall carry out its work under this Contract in a manner that shall ensure full compliance by the CITY with the Statute.

ARTICLE XX: INTEREST OF ENGINEER AND EMPLOYEES

The ENGINEER covenants that it presently has no interest and shall not acquire

any interest, direct or indirect, in the study area or any parcels therein or any other interests which would conflict in any manner or degree with the performance of its services hereunder.

The ENGINEER further covenants that in the performance of this Contract, no person who has any such interest shall be employed by the ENGINEER.

ARTICLE XXI: INCORPORATION OF PROVISIONS REQUIRED BY LAW

Each provision and clause required by law to be inserted into the Contract shall be deemed to be enacted herein and the Contract shall be read and enforced as though each were included herein. If through mistake or otherwise any such provision is not inserted or is not correctly inserted, the Contract shall be amended to make such insertion upon application by either party.

ARTICLE XXII: PAYMENT BOND

A payment bond shall be required for all sub-consultants, surveyors, geotechnical engineers and for all other professional services wherein the services are not performed by employees of the Engineer's firm.

ARTICLE XXIII: VENUE

Any action brought by either party based on any claim arising under or as a result of this contract shall be brought in a court of competent jurisdiction in Galveston County, Texas.

ARTICLE XXIV: TIME IS OF THE ESSENCE

Time is of the essence for the completion of all work described in this contract. It is anticipated that all work will be completed within the time as stated in the Schedule from the date of execution, and that any delay in the completion of the work described herein shall constitute a breach of this contract.

ARTICLE XXV: VERIFICATION AND COMPLIANCE WITH STATE LAWS

By signing this Contract and the attached Certificate of Interested Parties (Form 1295) and the document relating to H.B. No. 89), the consultant verifies they are in compliance with all state laws, including Texas Government Code Chapter 2252, Subchapter F (S.B No. 252), Texas Government Code Section 2252.908 (Disclosure of Interested Parties) and Texas Government Code Chapter 2270 (H.B. No. 89); and hereby acknowledges the following:

1. CONSULTANT is not a company engaged in business with Iran, Sudan, or a foreign terrorist organization and is not a company included on the list prepared by and maintained by the Texas State Comptroller.

**CITY OF FRIENDSWOOD
STANDARD CONTRACT AGREEMENT**

**PROFESSIONAL SERVICES
FOR ENGINEER**

2. CONSULTANT does not boycott Israel; and
3. Will not boycott Israel during the term of this Contract.

EXECUTED IN Three (3) counterparts (each of which is an original) on behalf of ENGINEER by Daniel Jackson its Vice President shown below, and on behalf of the CITY by Mike Foreman, its Mayor, thereto duly authorized this 4th day of February, 2019.

ACCEPTED:

CITY:

CITY OF FRIENDSWOOD, TEXAS

MAYOR

DATE: _____

ATTEST:

CITY SECRETARY

APPROVED AS TO FORM:

CITY ATTORNEY

PROPOSED AND AGREED TO:

ENGINEER:

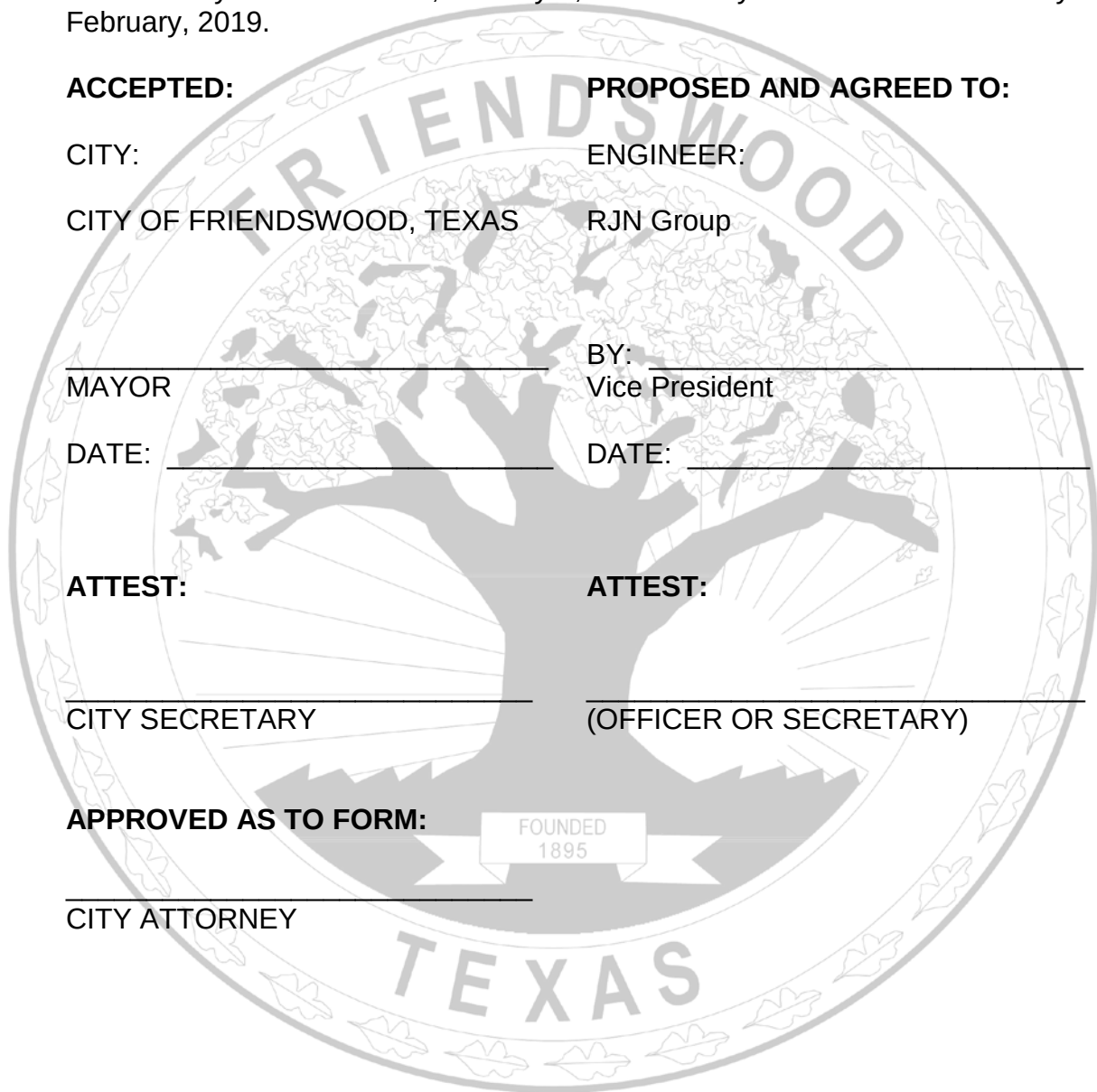
RJN Group

BY: _____
Vice President

DATE: _____

ATTEST:

(OFFICER OR SECRETARY)





FRIENDSWOOD CITY COUNCIL AGENDA ITEM FORM

This form should be completed as soon as possible prior to the first date that the item is expected to be placed on the Friendswood City Council agenda.

Date requested for City Council consideration: February 4, 2019

Date Submitted: January 31, 2019

Dept. Clearances: Melinda Welsh

Prepared by: Susan Ballard/Mayor Foreman

Subject: Resolutions

Originating Department: M & C

Proceeding: Discussion and Possible Action

(I.E. Special Session, Discussion and Possible Action (contracts, agreements, appointments, directives), Resolution, Ordinance, Communication from Mayor/Council, Consent Agenda)

Degree of importance: Critical ☐ Significant ☒ Elective ☐

SUMMARY / ORIGINATING CAUSE

Select second-grade students from Westwood Elementary will be participating in the Council meeting to take part in a mock governance simulation. These students will step up to the dais to replace the Mayor, City Council, and Staff. They will consider and vote on a resolution declaring February 5, 2019, as Westwood Elementary Day in Friendswood.

IMMINENT CONSEQUENCES / BENEFIT TO COMMUNITY

To show the students government in action.

ASSOCIATED COSTS / FUNDING SOURCE

N/A

ATTACHMENTS

[Resolution R2019-03](#)

RESOLUTION NO. R2019-03

**A RESOLUTION OF CITY OF FRIENDSWOOD, TEXAS,
DECLARING FEBRUARY 5, 2019 AS WESTWOOD
ELEMENTARY SCHOOL DAY IN THE CITY OF
FRIENDSWOOD, TEXAS.**

* * * * *

**NOW THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF
FRIENDSWOOD, TEXAS, THAT FEBRUARY 5, 2019 IS HEREBY DECLARED AS
WESTWOOD ELEMENTARY SCHOOL DAY IN FRIENDSWOOD, TEXAS.**

PASSED, APPROVED AND ADOPTED this the 4th day of February, 2019.

Mike Foreman
Mayor

Attest:

Melinda Welsh, TRMC
City Secretary



FRIENDSWOOD CITY COUNCIL AGENDA ITEM FORM

This form should be completed and forwarded to the City Manager's Office as soon as possible prior to the first date that the item is expected to be placed on the Friendswood City Council agenda.

Date requested for City Council consideration: February 4, 2019

Date Submitted: January 29, 2019

Dept. Clearances: Patrick Donart

Prepared by: Patrick Donart

Originating Department: PW

Subject: Design Criteria Manual Update

Proceeding: Resolution

City Attorney Review: MKF

Degree of importance: Critical ☐ Significant ☐ Elective ☒

Expenditure Required: N/A

Amount Budgeted: N/A

Appropriation Required: N/A

Source of Funds: N/A

FINANCE APPROVAL: N/A

SR

Steven Rhea
Asst. City Manager

SUMMARY / ORIGINATING CAUSE

The Community Development Department has been working diligently on an application for Scenic City. There are opportunities to capture more points on the applications by making minor adjustments to our Design Criteria Manual. We realized this would be a good opportunity to make additional minor changes on a couple other areas in the manual. The proposed changes (in order they are found in the manual) include:

- An update of lift station criteria as it pertains to float controls
- A clarification of minimum line size for a line with two meters
- An addition of criteria pertaining to utility and cable installations in the right of way as to not block sidewalks or visibility
- A requirement to install utility service lines underground from the right of way
- A requirement to restrict proximity of overhead utilities within 100 feet of existing underground utilities on a side street

IMMINENT CONSEQUENCES / BENEFIT TO COMMUNITY

Benefits include a manual that assists our community grow.

RECOMMENDATIONS

Staff recommends approval of the proposed resolution.

ATTACHMENTS

[Design Criteria Manual Resolution](#)
[2019 - Design Criteria Manual](#)

RESOLUTION NO. R2019-04

**A RESOLUTION APPROVING AND ADOPTING
UPDATES/AMENDMENTS TO THE “DESIGN CRITERIA
MANUAL” FOR THE CITY OF FRIENDSWOOD, TEXAS;
APPROVING THE STANDARDS CONTAINED THEREIN
FOR THE DESIGN, CONSTRUCTION AND INSTALLATION
OF PUBLIC INFRASTRUCTURE AND RELATED
FACILITIES AND IMPROVEMENTS WITHIN THE CITY;
AND REPEALING ALL PRIOR DESIGN CRITERIA
MANUALS AND REPEALING OTHER RESOLUTIONS OR
PARTS OF RESOLUTIONS INCONSISTENT OR IN
CONFLICT HERewith.**

* * * * *

WHEREAS, consistent with APPENDIX B “Subdivisions”, Section III(a), of The City Code of the City of Friendswood, the City of Friendswood Design Criteria Manual shall be updated from time to time and adopted by Resolution; and

WHEREAS, the City Council has determined a need for updating the City of Friendswood Design Criteria Manual to provide for the most current and comprehensive standards covering the design, construction, and installation of public infrastructure and related improvements within the City; and

WHEREAS, the City of Friendswood-Public Works Department “Design Criteria Manual”, which document is updated/amended and on file with the City Secretary’s office, shall be approved and adopted as the most recent Design Criteria Manual for the City of Friendswood; now therefore,

**BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF FRIENDSWOOD,
TEXAS:**

Section 1. The facts and matters set forth in the preamble of this Resolution are hereby found to be true and correct.

Section 2. That certain City of Friendswood-Public Works Department “Design Criteria Manual”, dated January 2019, a true and correct copy of which is on file in the office of the City Secretary and for all things made a part hereof, is hereby adopted. The standards and related documents contained and referred to therein shall control and are hereby established as minimum design, construction, and installation standards for certain public infrastructure and related improvements within the City of Friendswood, Texas, for City projects and subdivision and other related development. In the event of conflict between any provision of the Design Criteria Manual and any ordinance of the City, or between the Design Criteria Manual and any condition of plat or development approval imposed by the City, the provisions of any such ordinance or term or condition of approval shall control.

Section 3. The Director of Public Works shall maintain copies of such Design Criteria Manual and related documents, which shall be made available, upon payment of the reasonable costs of publication thereof, to any person requesting same. The Director is further directed to periodically evaluate and review such standards and, when deemed necessary and appropriate, recommend changes to City Council.

Section 4. All other resolutions adopting prior versions of the Design Criteria Manual or any resolution inconsistent or in conflict herewith, are, to the extent of such inconsistency or conflict, hereby repealed.

PASSED, APPROVED AND RESOLVED on this 4th day of February 2019.

Mike Foreman
Mayor

ATTEST:

Melinda Welsh, TRMC
City Secretary



CITY OF FRIENDSWOOD

DEPARTMENT OF PUBLIC WORKS



DESIGN CRITERIA MANUAL



Patrick Donart, PE, CFM
Director of Public Works/City Engineer

APPROVED BY
RESOLUTION NO. 2019-XX
MARCH 2019

Changes in the 2019 revision of the City of Friendswood Design Criteria Manual shall be listed here by Section.

Changes to Section I – Graphic and Design Requirements: NONE

Changes to Section II – Wastewater Collection System:

1.04.K.34 – delete “*bubbler float system*” and insert “*submersible transducer for SCADA*”.

Changes to Section III – Water Line Distribution System:

1.05.F.1 – add the following: g. The minimum sized line for two (2) meters shall be three (3) inches or larger.

Changes to Section IV – Street Paving: NONE

Changes to Section V – Storm Drainage:

1.04.H.1.a – delete “*Subsection G, Item 6*” from the last line in this paragraph and replace with “*1.04.H.8*”.

Changes to Section VI – Site Development:

1.04.A.1 – insert the following subsection:

13. *Utility and Cable Installation*

- a. *Utility infrastructure shall be mounted on pads at ground level; if within the rights-of-way, utility infrastructure shall not block sidewalks or visibility at intersections.*
- b. *For future individual utility service, lines which originate in a public road right-of-way and extended to any building or structure shall be installed underground.*
- c. *On side streets with above-ground utility services which intersect a roadway with underground utility lines, the first pole supporting the above ground service shall be placed on such a side street at least one hundred (100) feet from the center of the roadway with the underground utilities.*

2.03.K – delete “*maximum eight (8) feet*” and replace with “*material, and appurtenances*”.

Changes to Appendix A – Attachments: NONE

Changes to Appendix B – Figures: NONE

Changes to Appendix C – Parking Group Tables:

Educational Services,
Elementary, Middle Schools:
Delete “*auditorium or gym and*” and replace with “*auditorium/gym or*”.

Educational Services,
Secondary Schools:
Delete “*auditorium or gym and*” and replace with “*auditorium/gym or*”.

Professional, Scientific , and Technical Services; Management of Companies and
Enterprises; Administrative/Support Services:
General Business Offices:
Add “1” to the first line in 2nd column before the comma in “*,000 sq. ft.*”.

Changes to Appendix D – Qualified Tree List: NONE

Changes to Appendix E – Downtown District Amenities: NONE

Changes to Appendix F – Culverts and Driveways Policy: NONE

Changes to Appendix G – Traffic Control Sign Policy: NONE

Changes to Appendix H – Streetlight Policy: NONE

TABLE OF CONTENTS

REVISION CHANGES

Changes to this revision of the Design Criteria Manual.

SECTIONS

- I. Graphic and Design Requirements
- II. Wastewater Collection System Design Requirements
- III. Water Line Distribution System Design Requirements
- IV. Street Paving Design Requirements
- V. Storm Drainage Design Requirements
- VI. Site Development Requirements

APPENDICES

- A. Attachments
 - 1. Lift Station Start Up Log
 - 2. Design Criteria Modification Form
 - 3. Galveston County Consolidated Drainage District Form DR-001 (Attachment 4)
- B. Figures
 - 1. Geometric Street Design Standards
 - 2. Divided Roadway Cross Sections – Urban
 - 3. Roadway Tapers for Subdivision Streets
 - 4. Undivided Roadway Cross Sections – Urban
 - 5. Typical Length of Median and Median Opening

- 6. Median Nose and Left Turn Bay Design
- 7. Cul-de-Sac
- 8. Driveway Spacing and Other Measurements
- 9. Off-Street Parking
- C. Parking Group Table
- D. Qualified Tree List
- E. Downtown District Amenities
- F. Culverts and Driveways Policy
- G. Traffic Control Sign Policy
- H. Streetlight Policy

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SECTION I

GRAPHIC AND DESIGN REQUIREMENTS

1.0 GENERAL

- A. Should any portion of this Section conflict with any provisions of the Subdivision Ordinance or Zoning Ordinance, the more stringent of the latter two (2) shall govern.
- B. The City Engineer shall have the final interpretation of any provisions in this Design Criteria Manual.
- C. The City Engineer has the right to issue administrative orders or design criteria modifications for just cause related to any provisions or conditions in this Design Criteria Manual.

1.01 CHAPTER INCLUDES

Graphic and design requirements for construction drawings.

1.02 REFERENCES

The City of Friendswood Standard Details and City of Friendswood Technical Specifications, latest versions. These can be downloaded from the City's website at: www.friendswood.com/publications

1.03 DEFINITIONS

- A. CADD (Computer Aided Drafting Design) – the preparation of documents utilizing computer facilities for the production of drawings, plans, prints, and other related documents.
- B. HCFCD – Harris County Flood Control District.
- C. GCCDD – Galveston County Consolidated Drainage District.

1.04 DESIGN REQUIREMENTS

- A. Provide a cover sheet for all projects involving three or more design drawings (excluding standard detail sheets). Drawing sheet numbers shall be shown on the cover sheet or area key map. Include a vicinity map to identify project locations. Also provide current City of Friendswood Standard Details Signature Block that

has a note stating that approval is valid for only one (1) year from the date of signatures.

- B. Preliminary drawings shall be prepared on nominal twenty-four (24) inches by thirty-six (36) inches or twenty-two (22) inches by thirty-four (34) inches overall paper stock.
- C. Final drawings shall be produced by CADD on paper stock. The engineer shall also submit, at the time of plan approval, an electronic PDF and DWG version of the CADD drawings on CD-ROM of the development showing all lot lines and associated lot information, rights-of-way, easements, contour-lines, utilities, and all drainage and paving improvements.
- D. Details of special structures (not covered by approved standard drawings such as stream or gully crossings, special manholes, or junction boxes, etc.) shall be drawn with vertical and horizontal scales equal to each other, and shown on a separate sheet(s) from the Standard Detail sheets.
- E. Each set of construction drawings shall contain paving and utility key drawings indexing specific plan and profile sheets. City of Friendswood Standard Detail drawings, where applicable, shall be included. All sheets shall have standard title blocks and be sequentially numbered. Where applicable, show HCFCDD or GCCDD key drawings and numbers.
- F. A drawing index shall be shown on the overall cover sheet.
- G. Overall project layouts shall be drawn to a minimum scale of 1 inch = 100 feet and provided with a drawing index.
- H. Plan and profile sheet stationing must run from left to right, except for short streets or lines originating from a major intersection.
- I. A north arrow shall be shown on all sheets (except standard or special detail sheets) and shall be located either toward the top or to the right. This requirement is waived under the following conditions:
 - 1. Short sections of improvements fitted on a sheet that otherwise has the north arrow correctly shown.
 - 2. Stationing is intended to start from the cardinal points of the compass and proceed in the direction of construction.
- J. Standard scales permitted for plans and profiles of paving and utility construction drawings are as follows:

1. Major thoroughfares, major collectors, and boulevards over four hundred (400) feet in length, or special intersections/situation.
 - a. 1 inch = 20 feet horizontal, 1 inch = 2 feet vertical
 2. Minor collectors or local streets.
 - a. 1 inch = 20 feet horizontal, 1 inch = 2 feet vertical
 - b. 1 inch = 40 feet horizontal, 1 inch = 4 feet vertical
 - c. 1 inch = 50 feet horizontal, 1 inch = 5 feet vertical
 3. Scales in Paragraph No. 2 above are a minimum; larger scales may be used to show details of construction.
- K. Each plan and profile sheet shall have a benchmark elevation and description of the benchmark, along with a current flood zone determination statement. Also include the temporary benchmark (TBM) with their elevation and coordinates.
- L. The seal, date, and original signature of the Professional Engineer licensed to practice engineering in the State of Texas, and who is responsible for the drawings, shall be required on each sheet developed by the engineer, along with their firm's registration information. The engineer may use a stamped or embossed imprint for his/her seal; however, the embossed imprint must be shaded such that it will reproduce on prints.
- M. A copy of the final plat for new developments shall be included with the final drawings when submitted for final approval.
- N. If a roadway exists where drawings are being prepared to improve or construct new pavement or a utility, label the existing roadway width, surface type, and thickness. Pavement thickness shall be ascertained by coring with the core hole and grout filled to protect pavement prior to construction.
- O. Show all street and/or road alignments on drawings.
- P. Develop drawings to accurate scale showing proposed pavement, typical cross sections, details, lines and grade, and all existing topography within street rights-of-way, and any easement contiguous with the rights-of-way. At the intersection, the cross street details shall be shown at a sufficient distance [twenty (20) foot minimum distance outside the primary roadway rights-of-way] in each direction along the cross street in order to design adequate street crossings or transitions.

- Q. Match lines between plan and profile sheets shall not be placed or shown within cross street intersections including cross street rights-of-way.
- R. Natural ground profiles shall be shown as follows:
1. For privately-funded projects, center line profiles are satisfactory except where a difference of one-half (0.5) foot or more exists from one (1) rights-of-way or easement line to the other, in which case, dual profiles are required.
 2. For City of Friendswood projects, provide natural ground profiles at each rights-of-way line. Easement profiles shall conform to S.1 below.
- S. Basic plan and profile sheets shall contain the following information:
1. Identify all lot lines, property lines, easements, and/or rights-of-way.
 2. Label each plan sheet as to street/easement widths, pavement widths, pavement thickness where applicable, type of roadway materials, curbs, intersection radii, curve data, stationing, existing utilities (type and location), and any other pertinent feature affecting design.
 3. Show all utility lines four (4) inches in diameter or larger within the rights-of-way or construction easement in profile view. Show all utility lines, regardless of size, including franchise utility lines, in the plan view.
 4. Graphically, show flow line elevations and direction of flow for all existing ditches.
 5. Label proposed top of curb elevations and grades, except at railroad crossings. Centerline elevation and grades are acceptable only for paving without curb-and-gutters.
 6. Curb return elevations and grades for turnouts shall be shown in profile.
 7. The centerline elevation at the property line of all existing driveways shall be shown in profile.
 8. Station all esplanade noses or the centerline of all esplanade openings with esplanade width shown, both existing and proposed.
 9. The design of both roadways is required on all paving sections with an esplanade.

10. Station all Points of Curvature (PCs), Points of Tangency (PTs), radius returns, and grade change Points of Intersection (PIs) in the plan view. Station all radius returns and grade change Points of Intersection (PIs) in profile with their respective elevations.
- T. Provide a Storm Water Pollution Prevention Plan (SWPPP) with legend. See Section VI – Site Development under Design Requirements.
- U. The Drainage Plan shall have a current FEMA flood zone determination statement.
- V. All “No Objection” letters expire one (1) year after issuance.

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SECTION II

WASTEWATER COLLECTION SYSTEM DESIGN REQUIREMENTS

1.0 GENERAL

- A. Should any portion of this Section conflict with the Subdivision Ordinance or the Zoning Ordinance, the more stringent of the latter two (2) shall govern.
- B. The City Engineer shall have the final interpretation of any provisions in this Design Criteria Manual.
- C. The City Engineer has the right to issue administrative orders or design criteria modifications for just cause related to any provisions or conditions in this Design Criteria Manual.
- D. Sanitary sewers located on private property that are not in a dedicated easement, are under the jurisdiction of the International Plumbing Code, as adopted and amended by ordinance, and will be addressed/reviewed by the Building Official.

1.01 CHAPTER INCLUDES

Criteria for the design of wastewater collection systems.

1.02 REFERENCES

- A. Texas Commission on Environmental Quality (TCEQ) – "Design Criteria for Sewerage Systems" – Texas Administration Code – Chapter 217 (current revision).
- B. Galveston County Health Department.
- C. City of Friendswood Standard Details and Technical Specifications, latest version. These can be downloaded from www.friendswood.com/publications.

1.03 DEFINITIONS

Where used in these regulations, the following terms shall be construed to carry the meanings given below:

- A. Public Sanitary Sewer – A closed conduit which conveys wastewater flow and which is located within the public rights-of-way or dedicated public easement. A public sanitary sewer (or public sewer system) is intended to serve more than one (1) "owner".
- B. Private Sanitary Sewer – A closed conduit which conveys wastewater flow and is constructed and maintained by a private entity (ies) (i.e., homeowner's association). Private sanitary sewers may be located in areas such as a private street or common area, and are subject to the design and construction requirements of the International Plumbing Code, as adopted and amended by ordinance. Private sanitary sewers must discharge to a public sanitary sewer.
- C. Sanitary Sewer Main – A sanitary sewer which receives the flow from one (1) or more lateral sanitary sewers.
- D. Lateral Sanitary Sewer – A sanitary sewer running laterally down a street, alley, or easement, which receives only the flow from the abutting property.
- E. Service Lead – A sanitary sewer which branches off a public sanitary sewer and extends to the limits of the public rights-of-way. It shall be construed as having reference to a public sanitary sewer branching off from a main or lateral sanitary sewer to serve one (1) or more houses, single-family lots, or other types of small land tracts situated in the same block with the said main or lateral sanitary sewer, but not directly adjacent thereto. Such a line shall never exceed one hundred fifty (150) feet in length. If the sanitary sewer is designed to serve more than two (2) houses, or the equivalent of two single-family residences along a street, a lateral sanitary sewer as defined above shall be constructed.
- F. Service Connection – A private sanitary sewer from a single source to the main or lateral sanitary sewer in the street, alley, or easement adjacent thereto. Service connections are covered by the International Plumbing Code, as adopted and amended by ordinance. It will be owned and maintained by the owner of the property being served by said sanitary sewer.
- G. Project Area – The area within the immediate vicinity of the public sanitary sewer to be constructed. For example, if a public sanitary sewer were to be constructed within the public rights-of-way, the project area would extend ten (10) feet to either side of the public rights-of-way. If as an example, a public sanitary sewer is to be constructed within a dedicated easement adjacent to the public rights-of-way, the project area would extend ten (10) feet to either side of the dedicated easement, depending upon the existing topographical elements, unless impacted by a permanent structure (i.e., telephone pole, trees, drainage ditches, etc.) If, as

an example, a public sanitary sewer is to be constructed within a side lot easement (if approved by the City), the same criteria would apply as for a dedicated easement adjacent to public rights-of-way.

- H. Stack – A riser pipe constructed on main or lateral sanitary sewers which are deeper than six (6) feet, measured from finished grade at manhole to facilitate construction of service leads or service connections.
- I. Force Main – A pressure-rated conduit (i.e. ductile iron pipe, pressure-rated PVC, etc.) that conveys wastewater from a pump station to a discharge point.
- J. All references hereafter to sewer, public sewer, private sewer, sewer main, lateral sewer, service lead, service connections, stack, and force mains shall mean elements of a sanitary sewer system.

1.04 DESIGN REQUIREMENTS

- A. Drawings to be furnished:

Before any main or lateral sewer is constructed and before a permit shall be issued for the construction of same, plans and profiles of the proposed sewer shall be prepared and submitted to the City for approval. All reproducible drawings and CADD files shall become the property of the City and shall remain on file in the City for the use of any person who may be interested in such information.

- B. Details to be shown on drawings:

The detailed plan view will show the exact location of public sewer lines in the street, alley, or easement with respect to the edge of the particular rights-of-way, the survey base line, and any nearby utilities, major landscaping, and other structures affecting construction.

- C. Main and Lateral Sewers

- 1. Sewers in curved easements, easements defined by property lines, and combined easements containing other public utilities shall be shown both in detailed plan and profile views.
- 2. The profile shall show other underground and surface utilities, and facilities, both in parallel and at crossings; the size, grade of the proposed line, the elevation of same to hundreds of a foot at all manholes, changes of grade and dead-ends, and the proposed finished grade over the sewer.

It shall show the actual ground line as it exists prior to construction of the sewer. Where proposed fill or cut is contemplated, the proposed new ground line shall be shown as a separate line from the actual ground line. Type of pipe and bedding shall comply with City of Friendswood Technical Specifications and Standard Details.

3. Where public sewers are to be placed between existing pavement and the street rights-of-way (or interior easement line) or under existing pavement or shoulders of pavement, show the existing ground line at both sides (or the closest side for sewers near the edge) of the rights-of-way or adjacent sewer easement.

D. Sewer mains – plan and profile required

1. Sanitary sewer layouts for single-family residential subdivisions should use a scale of one hundred (100) feet or less per inch. A scale of two hundred (200) feet per inch may be used provided the following information is shown on the layout:
 - a. All easements containing or buffering sanitary sewers shall have points of size change shown, and all manhole locations shall be shown.
 - b. The sewer alignment shall accurately reflect the relative location of the sewer as shown on the detailed plan view.
 - c. All service leads that cross street pavement or serve adjacent property shall be shown on the layout. The detail plans and profiles shall show the flow lines of all service leads at the street or easement rights-of-way.
 - d. The number and size of the lots depicted on both the overall sewer layout sheet and the individual plan and profile sheets shall match the number and size of the lots depicted on the final plat after recordation.
 - e. On the overall sanitary sewer layout sheet the size and direction of flow for all existing and proposed sewers shall be shown.
 - f. The location of the proposed sewer within the public rights-of-way, a dedicated easement adjacent to the public rights-of-way, or side lot easement (if allowed by the City).

- g. The overall sanitary sewer layout sheet shall show the area, in acres, which the proposed sewer(s) is (are) designed to serve. A location map shall be included that references the average proximity to nearby major thoroughfare and boulevard streets. The scale of the location map shall be 1 inch = 2,000 feet or less.
- 2. Non-residential subdivision sanitary sewer layouts for large areas, and with a scale of four hundred (400) feet or more per inch, shall have an additional set of layouts at not more than two hundred (200) feet per inch, with match lines and a small index map showing which portion of the overall layout that each sheet's layout represents.
- 3. Acceptable horizontal scales for the detailed plan and profile views shall be ten (10) feet, twenty (20) feet, forty (40) feet, and not more than fifty (50) feet maximum per inch. Horizontal scale for major thoroughfares and boulevards shall be 1 inch = 20 feet or less.
- 4. Acceptable vertical scales for detailed profile views shall be two (2) feet, four (4) feet, and not more than five (5) feet maximum per inch unless otherwise approved. Vertical scale for major thoroughfares and boulevards shall be 1 inch = 2 feet or less.
- 5. The plan view shall show, at a minimum, the following information for the project area:
 - a. All topographical features;
 - b. Stationing for the proposed sewers;
 - c. All existing underground and overhead utilities (i.e. telephone, gas, power, etc.);
 - d. Any significant landscaping and/or other structures which might impact construction and/or construction related activities;
 - e. The width and type of all existing and proposed easements;
 - f. All proposed service leads;
 - g. The limits of bore and/or tunnel;

- h. Locations where pressure rated pipe is to be installed at water line crossings;
 - i. Drawings for single-family residential subdivisions shall show the proposed location by stations of all service leads, service connections, and stacks. The distance from the sewer or survey base line station to the nearest existing manhole shall be shown in the plan view or on an additional sewer layout sheet with a scale no more than 1 inch = 100 feet.
- 6. The profile view shall show, at a minimum, the following information for the project area:
 - a. Underground and/or surface utilities/facilities which are either parallel to the proposed sewer or cross the proposed sewers;
 - b. The proposed sewer's diameter and grade for each manhole section;
 - c. The flow line elevation for all sanitary sewers at each manhole;
 - d. The rim elevation of all existing and proposed manholes;
 - e. The flow line elevation at each sheet "break" [i.e., from one (1) sheet to another];
 - f. Type of pipe bedding/backfill shall be noted on each plan/profile sheet;
 - g. The finished grade for proposed and existing pavement where "fill" and/or "cut" is proposed, the proposed new ground elevation line shall be shown as a separate line from the existing ground elevation line;
 - h. The existing ground elevation line for the "near side" of the public rights-of-way where a sewer is to be placed between the edge of existing pavement and the edge of the public rights-of-way;
 - i. The existing ground elevation line at the centerline of the proposed sanitary sewer where a sanitary sewer is to be placed within an existing easement;

- j. Show any proposed and/or existing pavement;
- k. The flow line elevation of all service leads where they cross the edge of the public rights-of-way or the dedicated easement adjacent to the public rights-of-way;
- l. The limits of bore and/or tunnel;
- m. Locations where pressure rated pipe is to be installed at water line crossings;
- n. The location of special backfill and/or proposed stacks shall be identified by "stations" indicated on the design plans;
- o. The location of stacks shall be labeled with stations.

E. Service leads

- 1. Service leads shall be sized in accordance with Paragraph 1.04.G of this Section.
- 2. Service leads shall be at the property line between two (2) adjoining lots, or as directed by the City. A single six (6) inch service lead located at the property line between two (2) adjoining lots would serve two (2) single-family residences with a wye placed at the end of the service lead. Do not extend the wye clean-outs beyond the edge of either the public rights-of-way or dedicated easement.
- 3. Any service lead extension of more than fifty (50) feet parallel to the street rights-of-way shall be treated as a lateral sewer.
- 4. Service leads from developments with more than seventeen thousand five hundred (17,500) gallons-per-day flow shall discharge into a proposed or existing manhole. Where the flow line of the service is thirty (30) inches or greater above the flow line of the manhole, provide a standard drop to manhole.
 - a. Service leads shall be provided to serve each lot within a proposed development;
 - b. Service leads shall be six (6) inches in diameter (minimum). If the length of a service lead exceeds one hundred (100) feet or the

width of the public rights-of-way by more than twenty (20) feet, the minimum diameter shall be eight (8) inches and a manhole shall be utilized for connection to the public sewer;

- c. Service leads with a diameter of six (6) inches shall utilize "full body" fitting (extruded or factory-fabricated) for connection to the proposed public sewer or an approved saddle-type connector for connection to an existing public sewer;
- d. Saddle-type connectors shall be installed with the "stub" oriented between the "spring line" (3 o'clock and 9 o'clock positions) and forty-five (45) degrees from the "spring line" ("1:30" and "10:30" positions). Tees (aka, "full body fittings") shall be oriented in the same manner;
- e. The service lead shall be designated to minimize the use of bends as site conditions will permit;
- f. Service leads exceeding the limits defined in 1.04.E.3 shall have a manhole at each end; as well as, a plan/profile drawing for each rights-of-way crossing. All, or part, of these service leads which are located in a public rights-of-way, alley or dedicated sanitary sewer or public utility easement may be treated as a public sewer, depending upon the location of the terminal manhole and any intermediate manholes;
- g. For all existing lots (which are not served in accordance with these guidelines) that need a service lead, if the distance to the nearest existing sewer is less than fifty (50) feet, the service lead falls under the jurisdiction of the International Plumbing Code, as adopted and amended by ordinance, and the Building Official.

F. General Requirements

- 1. Sanitary sewers shall allow for orderly expansion of the system and shall conform to the comprehensive water and sewer plan for the City of Friendswood.
- 2. Sewers shall be sized based on the minimum requirements set out in this standard and the standard wastewater flow rates as established by the City of Friendswood;

3. All sewers shall conform to the minimum requirements of the Title 30 of the Texas Administrative Code, Chapter 217 of Texas Commission on Environmental Quality (TCEQ), and Galveston County Health District.
4. Sewers shall be separated from water lines by a minimum of nine (9) feet. Where the minimum separation is not maintained, refer to Section VII for allowable clearances. Sewers crossing utilities other than water, a minimum of six (6) inches of clearance must be maintained.
5. As maintained by the City of Friendswood, the public sanitary sewer shall be defined as all sewers, including stacks and service leads, that serve more than one sewer connection, and that are located in public easements or street rights-of-way, and that are installed in accordance with these Standards.
6. Sanitary lines greater than six (6) feet deep shall require stacks to facilitate construction of service leads or service connections. Stacks shall be shown on plans with station numbers. Place stacks and wyes or tees as shown. Where no stacks are shown, it is the responsibility of the licensed plumber to place a City approved saddle for connection to the line and the responsibility of the City Project Manager to determine that such saddle is water tight and properly installed.
7. Materials and construction shall conform to latest City of Friendswood specifications with all amendments thereto, including standard leak test.
8. Unless noted otherwise, all public sewers and service leads shall be completely embedded in cement-stabilized sand to six (6) inches below the pipe, twelve (12) inches above the pipe and to six (6) inches on each side. All such bedding shall be compacted to ninety-five (95) percent standard proctor density. The cross-section so described herein shall be termed the "embedment zone."
9. Backfill all excavation areas/trenches under or within twelve (12) inches of existing or proposed pavement or shoulder of pavement with cement-stabilized sand from the top of the pipe "embedment zone" to the bottom of the subgrade. Cement-stabilized sand must develop one hundred (100) psi compression at forty-eight (48) hours. Backfill shall be compacted to ninety-five (95) percent standard proctor density.
10. The location of all special backfill and of proposed stacks shall be shown by stations in the drawings.

11. Construction notes shall designate the kind and class of pipe with exceptions to the construction notes to be shown on the plan and profile sheets.
12. Non-sanitary sewer easements or fee strips such as pipeline, power company, drainage district, railroad, etc., are in and of themselves insufficient and unacceptable to permit laying of sanitary sewers and/or force mains across or along the underlying private property or restricted non-sanitary use type of public property.
13. The final determination as to that portion of a street, alley, or easement to be occupied by a proposed sewer rests with the City Engineer who will take into consideration existing, planned and proposed facilities such as manholes, pavement, pipe/conduits, along with existing trees, shrubs, or other unique surface conditions when arriving at a decision.;
14. Where an easement for a public sewer ends at a public rights-of-way, the last manhole shall be extended into the public rights-of-way at a minimum of two (2) feet beyond the property line; or as close to the public rights-of-way as possible due to acceptable clearances required for other utilities (i.e., water line and storm sewers).
15. The drawings for the sewer shall show the location of any existing known pipe, duct, or other obstacles that might interfere with the construction of the sewer and call such to the attention of the City any known obstacles that might be encountered in constructing the sewer in any location under consideration. The Professional Engineer for the project, who shall be licensed to practice engineering in the State of Texas, shall determine the existence of pipes, ducts, and/or obstacles from a visual survey on the ground plus research of all public records and private records when available.
16. All sanitary sewer mains shall be constructed utilizing pressure rated pipe SDR 26, unless specifically approved otherwise by the City Engineer.
17. In new developments, sanitary sewer lines shall be centered in sanitary sewer line easements.

G. Line Size

1. The minimum pipe diameter for a public sanitary sewer shall be eight (8) inches.
2. Four (4) inch service leads shall be confined to the limits of the lot which they serve and shall serve only the equivalent of one (1) single-family lot. No four (4) inch sewer shall be laid in any street, alley, or rights-of-way.
3. Six (6) inch service leads shall not serve more than the equivalent of two (2) single-family lots or other types of small land tracts.
4. Four (4) inch and six (6) inch service leads for single-family residential lots shall have a minimum grade of one (1.0) percent and one-half (0.5) percent, respectively.
5. For commercial service leads such as street bores, submit a copy of the approved plumbing drawings to establish the required size of the line. The minimum size lead shall be six (6) inch.
6. All main and lateral sewers shall end in manholes, except for special and/or unusual situations that are subject to specific approval by the City Engineer.
7. All sewer lines shall be laid at a size and depth to conform to designs permitting an orderly expansion of the sewer system of the City, and so as to avoid a duplication of lines in the future.
8. The City Engineer shall have final approval as to what sizes and depths are required, along with exceptions to "lateral service leads" as previously defined.

H. Line Depth

1. The sewer should be laid with the top of the pipe a minimum of three (3) feet below finished grade or top of curb, whichever is lower.
2. Sewer laid in street rights-of-way with curb-and-gutter paved streets shall have a minimum cover of four (4) feet from the top of the pipe to the top of the curb to anticipate future sewer extension.

3. Sewers laid in street rights-of-way with crowned roads and side ditches shall have a minimum cover of five (5) feet from the average ground elevation line at the adjacent street rights-of-way to the top of pipe.
4. Where the minimum cover as specified in paragraphs H.1, H.2, and H.3 above is not possible, the sewer shall be laid in Class 150 [one hundred fifty (150) psi] pressure pipe or rigid factory made pipe with cement-stabilized sand backfill as shown on the City's Standard Details. Ductile iron pipe shall be lined with either a polyethylene or polyurethane coating as approved by the pipe manufacturer and applied by either the pipe manufacturer or an approved application. The minimum liner thickness shall be forty (40) mils.
5. Maximum depth for eight (8) inch, ten (10) inch, and twelve (12) inch collection lines shall be twenty (20) feet from average ground surface to pipe invert. Depths greater than twenty (20) feet are subject to approval by the City Engineer if justified for site-specific reasons during the preliminary engineering phase of the project design.

I. Line Grades

The following table lists the minimum and maximum grades for six (6) inch through twenty-seven (27) inch public sewers. The minimum grade is based on a minimum full pipe velocity of two (2) feet per second. The maximum grade is based on a maximum full pipe velocity of ten (10) feet per second. In both cases, the Manning Formula has been used with an "n" of thirteen-thousandths (0.013). The use of different pipe materials will not alter the use of thirteen-thousandths (0.013) for the purpose of the Design Criteria Manual.

Inside Dimension (I.D.) of Pipe in Inches	Minimum Slope (in Percent) to Develop V=2.0 ft./sec.	Maximum Slope (in Percent) to Develop V=10.0 ft./sec.
6	0.50	12.35
8	0.33	8.40
10	0.25	6.23
12	0.20	4.88
15	0.15	3.62
18	0.11	2.83
21	0.09	2.30
24	0.08	1.93
27	0.06	1.65

For sewers larger than twenty-seven (27) inches in diameter, the Professional Engineer of record, who shall be licensed to practice engineering in the State of Texas, shall determine the appropriate grade utilizing the Manning Formula, $n = 0.013$ and a full pipe velocity of two (2.0) fps minimum and ten (10.0) fps maximum.

J. Manholes

1. All manholes shall be precast concrete, unless the Professional Engineer of record, who is licensed to practice engineering in the State of Texas, submits a "cast in place" manhole design for review and approval by the City Engineer. All precast manholes are required to incorporate a "boot type connector" for sewer diameters up to twenty-four (24) inches. For sewer diameters greater than twenty-foot (24) inches, utilize either the "boot" type connector (if available) or an integral gasket. All precast manholes shall conform to the latest ASTM requirements. No manholes may be placed in the paved portion of the City rights-of-way.
2. For all public sewers, manholes shall be placed at all changes in alignment, changes in grade, junction points, dead-end mains, laterals, and at street, alley, or easement intersections as designs may require.
 - a. Sewers laid in easements shall have a manhole in each street crossed by the sewer.
 - b. The maximum distance between manholes shall be three hundred fifty (350) feet for eight (8) inch to forty-eight (48) inch pipe diameters. Spacing for lines of a diameter larger than forty-eight (48) inches shall be determined on an individual project basis.

- c. Sewers with the same or approximate flow line elevation shall intersect each other at a ninety (90) degree angle. However, where a true perpendicular intersection cannot be obtained, and where the entering sewer intersects the receiving sewer at or about the same flow line, one (1) or more manholes shall be utilized to maintain a minimum eighty (80) degree angle at the point of intersection. When the entering sewer is on the upstream side of the manhole, the minimum angle between the sewers may be reduced to a forty-five (45) degree angle; provided:
 - 1) A distinct flow channel can be maintained within the manhole when the flowline elevations of the sewers are at, or within, one (1) pipe diameter of the smaller pipe; or
 - 2) When the flow line elevation of the "entering" pipe is above the crown of the "primary" sewer and clearance can be provided between the sewers.
- d. Criteria for connections to, and utilization of, manholes:
 - 1) Where manholes are utilized to facilitate connections between public sewers, when possible the sewers shall either match the manhole's flow line or match the elevation of each other's crown or utilize a manhole drop.
 - 2) Connections between public sewers at the manhole shall adhere to the following criteria when possible:
 - a) The elevation of the crown of the discharging sewer shall either match the elevation of the crown of the receiving sewer or be approved as special cases by the City Engineer.
 - b) A standard drop connection is required when the difference in elevation between discharging sewer flowline and receiving flowline is greater than thirty (30) inches.
 - 3) The routing of service connection directly to manholes is the preferred method of termination. Where the flowline elevation of the existing sanitary sewer is more than ten

(10) feet below grade and there is no available stack, and either:

- a) The lot to be so connected is a single-family, owner-occupied, single lot residence connection to an existing manhole; or
 - b) The lot to be so connected is a single-family, owner-occupied, single lot residence connecting to a proposed manhole at the end of a cul-de-sac.
- 4) When routing an approved service connection to a manhole (see Item 3 above), the wall penetration shall not be greater than ten (10) inches in diameter and shall be cored and sealed using approved grout.
- 5) When routing an approved service connection to a manhole (see Item 3 above), the connections shall utilize a "drop (either inside or outside) and shall adhere to the following criteria:
- a) The manhole wall penetration shall be a minimum of ten (10) feet below the manhole rim elevation and shall not be greater than ten (10) inches in diameter;
 - b) The drop shall be six (6) inches in diameter and shall be constructed of SDR 26 PVC pipe (ATSM D 3034, latest edition);
 - c) The drop shall be located forty-five (45) degrees from the upstream side of the main sewer;
 - d) An internal drop shall be affixed to the manhole wall utilizing stainless steel bands and anchor bolts.
 - e) An internal drop shall terminate with a forty-five (45) degree bend. Said forty-five (45) degree bend shall not extend below the "top of pipe" elevation of receiving sanitary sewer and;

- f) The wall penetration (core) shall be sealed using a "grout" as approved by the City Engineer.
- g) All public sewers shall terminate in a manhole. Clean-outs will not be utilized except at the end of each service lead.
- h) The manhole cover shall have a minimum diameter of thirty-two (32) inches.
- i) All sanitary sewer manholes shall have inflow protectors.
- j) All manhole covers shall have the City of Friendswood seal and "SANITARY SEWER" imprinted on the lid as shown in the City of Friendswood Standard Sanitary Sewer Details.
- k) Commercial pressured discharge lines terminating in a manhole shall result in the manhole being protected by either a coating or concrete admixture to the interior walls of the manhole.

K. Lift Stations

- 1. Lift station design shall comply with the City of Friendswood Technical Specifications. In addition, it shall be confirmed that a storage volume, in the design of the wet well, shall equal to one and one-half (1.5) times the peak design flow to the lift station. Add ten (10) percent to account for volume displaced by pumps.
- 2. A natural gas standby generator shall be required for all new lift stations. The generator is required to be sized to operate all pumps during an emergency power failure.
- 3. A startup package for the pumps shall be submitted to the City Engineer before final acceptance. This package should also include a completed start up log sheet with field and product data. See Attachment 1.
- 4. Minimum site size shall be forty (40) feet by forty (40) feet. Smaller sites that are adjacent to public rights-of-way and are contiguous to green space

or similar land use areas, may be approved when adequate odor control provisions are provided.

5. Pumps shall be sized to operate at optimum efficiency. Minimum acceptable efficiency at the operating point will be sixty (60) percent unless specifically approved by the City Engineer.
6. Operation and maintenance shall be considered in the design of the station and the location of the station.
7. Wet well working volume shall be sized to allow for the recommended pump cycle of six (6) minutes for each pump.
8. Prior to installation, controls and equipment shall be approved by the City Engineer.
9. Emergency operations shall be considered. Provide fittings and a blind flange that will be readily accessible for emergency bypass pumping.
10. The inlet structure shall be designed to minimize turbulence.
11. The velocity in the force main and riser pipes shall be less than 8 feet per second and greater than three (3) feet per second.
12. The wet well shall be sized to provide adequate clearance between the pumps (refer to manufacturers recommended clearances).
13. A peak factor of four (4) shall be used for lift station design.
14. A minimum of two (2) feet of clearance shall be provided between pumps and between pump and wall.
15. Low water levels shall be at least six (6) inches above impeller, or higher if required by manufacturer.
16. Complete immersion of submersible pump motor at low water level is preferred, if possible.
17. Tie reinforcing steel in lift station bottom to wall reinforcing steel (includes caisson construction situation) to provide watertight wetwell.

18. Nuts, bolts, chains, and all other metal components within wetwell shall be stainless steel, not carbon steel.
19. Vent pipe shall be eight (8) inch minimum diameter equipped with odor control system.
20. The following Hazen-Williams Coefficient shall be used for various pipe types:

PVC	New	C = 160
	10-year	C = 140
DIP	New	C = 140
	10-year	C = 100
21. Provide board fence (either cedar or heart redwood) with steel posts set in concrete. Fence shall be at least eight (8) feet high.
22. Entrance drive to be at least fourteen (14) feet wide concrete pavement. Provide enough room to park vehicles inside lift station site.
23. Indicate method of drainage of site on site plan. Internal drainage, sheet flow and valley gutter driveways are acceptable. Drain to street or storm sewer, never onto adjacent private property.
24. Locate the control panel and wetwell hatch above the One Hundred (100) Year Flood Plain. Call out the One Hundred (100) Year Flood Plain elevation on the plans.
25. Stainless steel guide rails (or other pump removal method that avoids entering wetwell) are required for submersible pumps.
26. A tee, plug valve (or gate valve), and blind flange assembly is required on the force main on the downstream side of the discharge valves and header. This is required so truck-mounted pumps can bypass the lift station pumps and piping while maintenance work is being done on lift station.
27. Bedding for PVC force main shall be bank sand.
28. PVC force mains shall be AWWA C-900.
29. Ductile Iron Pipe (DIP) force mains shall be bedded in bank sand and polyethylene wrapped.

30. When calculating headloss in force main and piping, use of K factors on fittings, with the Hazen-Williams formula, is preferred.
31. Backfill structural excavations (wetwell, etc.) with cement-stabilized sand.
32. Lift station site plans shall be submitted in scales of 1 inch = 5 feet or 1 inch = 10 feet.
33. Provide a protective coating or concrete additive to the interior walls of the wetwell. The City Engineer shall approve coating or additive used.
34. Lift station shall be equipped with a telemetry system, approved by the City Engineer, and shall be compatible with existing systems in the City. A submersible transducer for SCADA shall be installed and connected to telemetry system to monitor status of lift station.
35. Power supply to lift station shall be three (3) phase and four hundred eighty (480) volts where possible.
36. A system of floats shall be provided to control pumps.
37. A pressure gauge suitable for application shall be installed on each discharge pipe.
38. A 1 inch minimum water service equipped with backflow prevention shall be provided at the lift station site.

L. Grease Traps/Grease Interceptors

Gravity grease interceptors shall be designed to remove grease from effluent and shall be sized in accordance with this section. Gravity grease interceptors shall also be designed to retain grease until accumulations can be removed by pumping the interceptor.

1. Each grease trap/grease interceptor shall be installed in such a manner that it can be easily accessible for inspection, cleaning, and removal of the intercepted grease. All permitting, construction, design, and inspection activities must be completed in accordance with the manufacturer's instructions and the International Plumbing Code. Additionally, the following specifications must be incorporated into grease trap design:

- a. The grease trap/grease interceptor shall be constructed with a minimum of two baffles.
 - b. Grease traps/grease interceptors are to be installed at a minimum distance of 10 feet from sinks and dishwashers to allow for adequate cooling of the wastewater. Water temperatures must be less than one hundred twenty (120) degrees prior to entering grease trap.
 - c. All grease bearing waste streams should be routed through an appropriate grease traps/grease interceptor, including: three-compartment sinks, pot/pan sinks, soup kettles, hand-washing sinks, dishwashers, mop sinks, and floor drains. *Notable Exceptions:* Drains that receive “clear waste” only, such as from ice machines, condensate from coils, and drink stations, may be plumbed to the sanitary system without passing through the grease trap.
 - d. All exterior or recessed grease traps/grease interceptors are to be installed with an effluent sampling well.
2. Requirements for traps are as follows:
- a. Equipment and facilities of a type and capacity approved by the approving authority shall be provided.
 - b. The trap shall be located in a manner that provides ready and easy accessibility for cleaning and inspection.
 - c. The trap shall be maintained in effective operating condition so as to meet an effluent oil/grease test parameter of less than one hundred (100) mg/l.
 - d. Traps shall conform to a minimum detention time of thirty (30) minutes and a maximum of sixty (60) minutes.
 - e. The minimum size shall be one thousand (1,000) gallons or greater as determined by the design engineer.

1.05 APPURTENANCES – Reserved

1.06 SUBMITTALS

A. Preliminary design – submit the following for review and comment:

1. Copies of any documents which grant approval of exceptions to the City's Design Criteria.
2. Design calculations for line sizes and grades.
3. Contour map for overall area.
4. Plan and profile sheets showing proposed improvements (City projects only).
5. Geotechnical soils report for the project (City projects only).

B. Final design – submit the following for approval:

1. Final documents of the above plus plan and profile sheets and Geotechnical soils reports for non-City projects.
2. Review prints.
3. Original drawings.

1.07 QUALITY ASSURANCE

Prepare calculations and construction drawings under the supervision of a Professional Engineer licensed to practice engineering in the State of Texas and trained in the disciplines required by the drawings. The final construction drawings must be sealed, signed, and dated by the Professional Engineer licensed to practice engineering in the State of Texas, and shall be responsible for the development of the drawings along with their firm's registration information.

2.0 EXECUTION

2.01 RESEARCH REQUIREMENTS

- A. Research existing utility and rights-of-way information.
- B. Verify that no restrictions exist that will deny approval of the project concept.

2.02 DESIGN ANALYSIS

Calculations of design flows for overall development project.

2.03 DRAWINGS

Drawings shall include layout sheets with contours, plan and profile sheets, and detail sheets for special items and treatment plants.

DRAFT

SECTION III

WATER LINE DISTRIBUTION SYSTEM DESIGN REQUIREMENTS

1.0 GENERAL

- A. Should any portion of this Section conflict with the Subdivision Ordinance or the Zoning Ordinance, the more stringent of the latter two (2) shall govern.
- B. The City Engineer shall have the final interpretation of any provisions in this Design Criteria Manual.
- C. The City Engineer has the right to issue administrative orders or design criteria modifications for just cause related to any provisions or conditions in this Design Criteria Manual.

1.01 CHAPTER INCLUDES:

Criteria for the design of water lines.

1.02 REFERENCES:

- A. Texas Commission on Environmental Quality (TCEQ), Water Utilities Division "Rules and Regulations for Public Water Systems," latest revision.
- B. American Water Works Association (AWWA).
- C. National Sanitation Foundation (NSF).
- D. Texas Department of Health.
- E. Texas State Board of Insurance.
- F. City of Friendswood Standard Details and Technical Specifications, latest version. These can be downloaded from: www.friendswood.com/publications.

1.03 DEFINITIONS:

Water Line – Closed conduits designed to distribute potable water for human consumption to various areas and provide fire protection. Line size and fire protection accessory locations are dependent on distance from primary source and quantity of demand.

1.04 DESIGN REQUIREMENTS:

A. Easements for water lines.

1. Lines shall be located within street rights-of-way, permanent access easements with overlapping public utility easements, easements adjacent to street rights-of way or recorded water line easements.
2. When outside of a public street rights-of-way or permanent access easement with an overlapping public utility easement, easements must be dedicated and restricted for water lines only.
3. When possible, easements shall be contiguous with public rights-of-way.
4. Except for side lot easements, water line easements shall be contiguous to a paved access.
5. For water lines twelve (12) inches or smaller located outside of street rights-of-way, minimum width of easement shall be ten (10) feet.
6. For water lines fourteen (14) inches or larger located outside of street rights-of-way, the minimum width of easement shall be fifteen (15) feet.
7. For water mains located less than five (5) feet from the rights-of-way line, the outside edge of a water line easement shall be located from the rights-of-way line as follows:
 - Twelve (12) inch and smaller pipe – five (5) feet
 - Fourteen (14) inch and larger pipe – ten (10) feet
8. Water lines along State rights-of-way shall be installed outside of the rights-of-way whenever possible and in a separate ten (10) foot minimum contiguous easement.
9. No back lot easements shall be allowed for the installation of water lines, unless specifically approved by the City.
10. Commercial developments requiring on-site fire hydrants must provide a minimum fifteen (15) foot water line easement for the water line and fire hydrant.

11. In new developments, water lines shall be centered in water line easements.
12. When using side lot easements, such easements shall be a minimum of ten (10) feet in width, located on one (1) lot or centered between lots. If centered between lots, the water line may be centered within the five (5) foot easement on one (1) lot, or centered in the full ten (10) foot easement.
13. Location of water lines in an easement not adjoining a public rights-of-way shall be prohibited, except as specifically approved by the City Engineer. When approved, these water mains will be centered in a fifteen (15) foot wide exclusive easement restricted to water only.

B. Location of water lines.

1. Locate within street rights-of-way.
2. Location of water lines within an easement – locate water lines in the center of a ten (10) foot minimum width dedicated waterline easement. Within a commercial development, center water lines within a fifteen (15) foot easement. Obtain approval for lines to be located in wider or multi-use easements.
3. When a water main is placed parallel to another utility line at or near the same grade, it shall have a minimum of nine (9) feet of horizontal separation. When the other utility is a sanitary sewer and a minimum of nine (9) feet cannot be maintained, the sanitary sewer must be constructed of pressure type pipe with watertight joints as used in water main construction and the clearances must be defined as in the following sections or as specifically approved by the City Engineer. When a water main crosses a utility other than sanitary sewer, a minimum of six (6) inches of clearance must be maintained, and the water main shall have one (1) joint of pipe, a minimum of eighteen (18) feet long, centered on the other utility.
4. When water mains and sanitary sewers are installed, they shall be installed no closer to each other than nine (9) feet in all directions, and parallel lines must be installed in separate trenches. Where the nine (9) foot separation distance cannot be achieved, the following procedures shall be used:
 - a. Where a sanitary sewer parallels the water main, the sanitary sewer shall be constructed of ductile iron, or PVC pipe meeting AWWA specifications, having a minimum working pressure rating of one

hundred fifty (150) psi or greater, and equipped with pressure type joints. The water mains and sanitary sewer shall be separated by a minimum vertical distance of two (2) feet, and a minimum horizontal distance of four (4) feet, measured between the nearest outside diameters of the pipes, and the water main shall be located above the sewer.

- b. Where a sanitary sewer crosses the water main, and that portion of the sewer is constructed within nine (9) feet of the water, as described above, the water line may be placed no closer than six (6) inches from the sewer. The separation distance must be measured between the nearest outside pipe diameters and the water line shall be located at a higher elevation than the sewer, and one (1) joint [a minimum of eighteen (18) feet long] of the new pipe must be centered on the existing line.

C. Water line size.

1. Six (6) inch lines may be used on dead-end lines within cul-de-sacs, or if the line is less than one thousand (1,000) feet in length and interconnected between two (2) lines which are eight (8) inches in size or larger. The maximum number of fire hydrants on any length of six (6) inch line is one (1).
2. Eight (8) inch lines may be used for lines over one thousand (1,000) feet long, or when two (2) or more fire hydrants are required.
3. Twelve (12) inch and larger lines – line length, usage, etc., to be determined by a Professional Engineer of record licensed to practice engineering in the State of Texas, and approved by the City Engineer.

D. Dead-end lines.

1. Dead-end lines within public rights-of-way.
 - a. On permanent dead-end lines, other than on cul-de-sacs, the dimension of the line shall be six (6) inches and shall not exceed more than five hundred (500) feet in length from the closest interconnecting main line. In addition, it shall terminate with a fire hydrant.
 - b. On permanent dead-end lines on cul-de-sacs it will be required to reduce the pipe size successively. It is required to carry an eight

(8) inch pipe to the next to last hydrant, then from that point use a six (6) inch pipe to the line's end. It is required to place the last service as near as possible to the end, and install a fire hydrant or two (2) inch blow-off at the end of the six (6) inch line. The maximum length of this reduced line size configuration shall not exceed eight hundred (800) feet.

2. Dead-end lines with one (1) on-site fire hydrant.

- a. Six (6) inch lines may be used for lengths less than two hundred (200) feet provided domestic service is taken from the end of the line.
- b. Eight (8) inch lines may be used for lengths greater than two hundred (200) feet but less than five hundred (500) feet, provided domestic service is taken from the end of the line.

E. Depth of cover.

1. Fourteen (14) inch and smaller mains shall have a minimum cover of four (4) feet from top of curb. For open ditch roadway sections, lines fourteen (14) inches and smaller shall be installed at least three (3) feet below the ultimate flowline of the ditch or six (6) feet below natural ground at the rights-of-way line, whichever is deeper and maintain the elevation throughout that section of line.
2. Sixteen (16) inch and larger mains shall have minimum cover of five (5) feet from top of curb. For open ditch roadway sections, lines sixteen (16) inches and larger shall be installed at least three (3) feet below the flow line of the ditch or seven (7) feet below natural ground at the rights-of-way line, whichever is deeper and maintain the elevation throughout that section of line.
3. Changes in grade, to clear other utilities or underground features, may be made by deflecting pipe joints. The maximum designed deflection shall be one-half (0.5) of the manufacturer's allowable deflection. If a depth greater than eight (8) feet to the top of the pipe is required, a welded steel section shall be used. The standard depth of cover is to be maintained above the water main, and the grade change shall be made using the welded steel section. The installation of fittings for vertical deflections, or changes in elevation, shall not be allowed except with specific approval by the City Engineer.

F. Water line crossings.

1. Public and private utility crossings other than sanitary sewer.

Where a water line crosses another utility other than a sanitary sewer, a minimum of six (6) inches of clearance must be maintained between the outside wall of the water line and the outside wall of the utility being crossed.

2. Stream and Ditch Crossings.

a. Elevated Crossings.

- 1) All water lines shall be steel or restrained-joint metallic pipe, and shall extend a minimum of fifteen (15) feet beyond the last bend or to the rights-of-way line, whichever is greater.
- 2) Elevated crossings are preferred rather than underground crossings.
- 3) Use a separate elevated supporting structure for sixteen (16) inch and larger water lines, unless otherwise approved by the City Engineer. The structure shall be located a minimum of ten (10) feet from any other existing or proposed structure.
- 4) Support water lines on existing or proposed bridges. The following criteria may be used for fourteen (14) inch and smaller lines when approved in advance by the City Engineer.
 - a) Adequate structural capacity shall be required.
 - b) Sufficient clearance above the bent cap elevation shall be required for installation under a bridge.
- 5) Design elevated crossings with the elevation of the bottom of the water line above the low chord of the nearest adjacent bridge, or a minimum of one and one-half (1.5)

feet above the One Hundred (100) Year Flood Plain elevation, whichever is higher.

- 6) Extend pipe from rights-of-way to rights-of-way for crossings.
- 7) Provide sufficient span length to accommodate for the cross section of any future widening of the stream or ditch, if available.
- 8) Support the line on columns spaced to accommodate the structural capacity of the pipe, considering deflection and loading.
- 9) Base column support design on soil capacity, spacing, loading, and structural requirements.

G. Underground crossings.

1. Provide a minimum three (3) foot clearance above the top of the pipe to the ultimate flow line of the ditch.
2. Provide sufficient length to exceed the ultimate future development of the stream or ditch.
3. All water lines shall be steel or restrained joint pipe and shall extend a minimum of fifteen (15) feet beyond the last bend or to the rights-of-way, whichever is greater. In addition, the water lines shall have valves located on both sides of the crossing.

H. TxDOT highway and county road crossings

1. Extend carrier pipe from rights-of-way to rights-of-way.
2. Use welded steel pipe, or restrained joint pipe in steel casing, under existing and future roadways. The pipe shall be installed from a point fifteen (15) feet outside of the service road, or outside of pavement toward the rights-of-way, to a similar point on the other side of the highway across the rights-of-way. For highway or roadway crossings with open ditch sections, extend the casing from rights-of-way to rights-of-way.

3. Highway and county road crossings shall be constructed in conformance with the applicable requirements of where the line is located. (i.e. Texas Department of Transportation, Galveston County or Harris County)
4. When additional rights-of-way has been acquired, or will be required for future widening, the casing where required, shall be carried to within ten (10) feet of each future rights-of-way line.

I. Street crossings

1. All water mains and sprinkler line crossings, under major thoroughfare boulevards, shall be encased using a minimum SDR rated or PVC pipe as required by the City's construction detail for "Water Main Encasement." Welded steel pipe may be substituted on street crossings, when specifically approved by the City Engineer.
2. Crossings under existing concrete streets, other than major thoroughfares, shall be constructed by boring and jacking. PVC and SDR rated pipe shall be jacked into place with equipment designed for that purpose. Water may be used to facilitate boring and jacking operations. Jetting the pipe main into place shall not be permitted. When conditions exist that warrant an open cut across the existing street, approval by the City Engineer shall specifically be required.
3. All open cut installations, under existing or proposed streets, shall be backfilled as required by City's Standard Details.
4. All street crossings shall be constructed in accordance with construction plans approved by the City. All street crossings shall be inspected by a City Project Manager, and shall meet the requirements of these standards.

J. Oil and gas pipeline crossings.

Metallic pipe shall not be used when crossing oil or gas transmission lines, unless a properly designed cathodic system is approved by the City Engineer and it is properly installed. Other pipe may be used, regardless of depth, subject to approval by the City Engineer. There must be a minimum of two (2) feet of separation between the pipeline and waterline.

K. On-site fire loops within commercial and multi-family developments.

1. For commercial and multi-family developments, requiring on-site fire hydrants, the following requirements shall be complied with to allow maintenance and future repair operations:
 - a. Placement of structures or equipment pads within the easement shall not be permitted.
 - b. Provide a ten (10) foot wide longitudinal pavement joint along the easement lines where the water line is located under a driveway, paved parking, or street pavement.
- L. Additional requirements.
 1. The carrier line shall extend a minimum of one (1) foot beyond the end of the casing to allow flanged joints to be connected.
 2. For welded steel bends, extend steel pipe a minimum of five (5) feet beyond the bend.
- M. Auger (bore) construction.
 1. Use the following general criteria for establishing auger or bore sections:
 - a. Auger or bore sections shall be clearly shown on drawings.
 - b. Improved streets – use auger construction to cross the street regardless of surface. Auger length shall be calculated utilizing the roadway width, at the proposed bore location, plus an additional five (5) feet to either side of the roadway, as applicable.
 - c. Sidewalks – when the water line crosses under a sidewalk, four (4) feet or more in width and in good condition, the sidewalk shall be bored and jacked or the sidewalk shall be removed and replaced to the City of Friendswood Standard Details requirements, whichever is most cost effective. Bore and jack length shall be at least the width of the sidewalk. The proposed type of construction shall be noted on the plans.
 - d. Bore Pits – Bore pits shall be at least three (3) feet from back of curb and shall be at least five (5) feet from the back of curb on a boulevard or major thoroughfare. All bore pits shall be shored in accordance with OSHA requirements. Bore pits and/or receiving

pits to be located in a street or driveway paving, shall be shown on the plans.

N. Water quality – overall system layout.

1. Circulation and flushing – The layout of the overall water distribution system shall provide the maximum circulation of water to prevent future problems of odor, taste, or color due to stagnant water.
 - a. Provide a source of fresh water at each end, or at multiple points of a subdivision. Provide ways to create circulation, and valves and fire hydrants shall be located to allow simple flushing of all lines.
 - b. Dead-ends shall be avoided whenever possible; if absolutely necessary, dead-ends shall be isolated with a line valve, kept as short as possible, and equipped with a fire hydrant near the line's end.
 - c. Where stubs are provided for future extensions, isolate the stub with a valve, and place one (1) full pipe joint beyond the valve, plug end of pipes. Service connections are to not be connected to the stub.
 - d. Water mains shall be looped unless physically impossible.
 - e. All materials which come in contact with public drinking water in any stage shall conform to ANSI/NSF Standard 60.
 - f. Layout and size of all water mains shall be consistent with the overall layout and phasing plan of the City's water system. The overall water system shall be designed to maintain adequate pressure throughout the system.
 - g. In an unavoidable permanent dead-end situation, reduce the sizes of pipe successively. Carry an eight (8) inch pipe to the next to last fire hydrant and use a six (6) inch PVC to the end of the line. Provide a fire hydrant or two (2) inch blow-off at the end of the main.

O. Clearance of water line from other utilities. (New water lines constructed near sanitary sewers and force mains).

1. New water lines parallel to sanitary sewers and force mains.

- a. Water lines shall be located a minimum of nine (9) feet horizontally, outside wall to outside wall, when parallel to sanitary sewers or force mains. Use the following procedure when nine (9) feet of separation cannot be achieved:

When a new water line is to parallel to an existing sanitary sewer force main and/or gravity sanitary sewer, and the nine (9) foot minimum separation distance cannot be maintained, the existing sanitary sewer shall be replaced with lined ductile iron or PVC pipe meeting ASTM specifications. In addition, the waterline shall have a minimum working pressure rating of one hundred fifty (150) psi or greater, and be equipped with pressure type joints. The water lines and sanitary sewer shall be separated as per the design requirements of TCEQ, at a minimum horizontal distance of four (4) feet measured between the nearest outside walls of the pipe. In all cases, the water line shall be located above the sanitary sewer. When a water main crosses a utility other than sanitary sewer, a minimum of six (6) inches of clearance must be maintained, and the water main shall have one (1) joint of pipe [a minimum eighteen (18) feet long] centered along the other utility line.

- b. Where a sanitary sewer crosses a water main and that portion of the sanitary sewer within nine (9) feet of the water is constructed as described in Section 290.44(e) of the TCEQ Rules and Regulations, the water line may be placed no closer than six (6) inches from the sewer. The separation distance must be measured between the nearest outside pipe diameters. The water line shall be located at a higher elevation than the sanitary sewer wherever possible and one (1) joint of the new pipe [a minimum of eighteen (18) feet long] shall be centered on the existing line.

2. When water lines are installed in areas which have existing sanitary sewers, every effort should be made to maintain nine (9) feet of separation between the outside pipe diameters of the two (2) lines. Where this separation cannot be achieved because of local conditions, which must be fully documented in any planning material submitted, the following spacing's shall be observed:

- a. Where a new water line is to cross or be installed parallel with an existing sanitary sewer and the sanitary sewer is constructed as described in Section 290.44(e) of the TCEQ Rules and

Regulations, the separation distances specified in those rules shall apply as though the sanitary sewer was new.

- b. Where a new water line is to be installed parallel to an existing clay, truss, or concrete gravity sanitary sewer showing no evidence of leakage vertically and horizontally for a distance of four (4) feet, the sanitary sewer is not to be disturbed. Should excavation for the water line produce evidence that the sanitary sewer is leaking; the sanitary sewer shall be repaired.
 - c. Where a new water line is to cross an existing clay, truss, or concrete gravity sewer showing no evidence of leakage vertically or horizontally for a distance of four (4) feet, the sewer is not to be disturbed if the water line is installed at least twenty-four (24) inches above the existing sanitary sewer. One (1) full joint of the water line [at least eighteen (18) feet long] shall be centered over the sanitary sewer crossing, so as to provide maximum protection against contamination.
 - d. Where there is an existing clay, truss or concrete sanitary sewer pipe showing no evidence of leakage, and because of physical limitations shall remain at a higher elevation than the proposed intersecting water line, an exception to the nine (9) foot requirement may be granted as long as the water line is inserted in a joint of pressure type carrier pipe at least eight (8) feet and two (2) nominal sizes larger than the waterline. The carrier pipe shall be centered on the sanitary sewer crossing and both ends sealed with cement grout. In lieu of this procedure, that portion of the sanitary sewer within nine (9) feet of the water line may be replaced with cast iron or ductile iron pipe with water-tight joints as described in Section 290.44(e) of the TCEQ Rules and Regulations, above.
 3. Sanitary sewer manholes – provide a minimum nine (9) foot horizontal clearance from outside wall of existing or proposed sanitary sewer manholes, unless manholes and connecting sanitary sewers can be made water-tight and tested for no leakage. If a nine (9) foot clearance cannot be obtained, the water line may be located closer to a manhole when prior approval has been obtained from the City Engineer using one (1) of the procedures below; however in no case shall the clearance be less than four (4) feet:

- a. A steel water line may be encased in a steel carrier pipe. Open cut and backfill with compacted cement-stabilized sand.
 - b. The water line may be augured past the manhole, as long as one (1) - twenty (20) foot section of C-900 PVC pipe [one hundred fifty (150) psi], is installed centered on the existing sanitary sewer manhole and a bentonite/clay mixture is utilized during the auguring process.
4. Fire hydrants shall not be installed vertically or horizontally within nine (9) feet of sanitary sewer mains, service leads, and force mains regardless of construction.

1.05 APPURTENANCES:

A. Valves.

1. Shall be set at maximum distances along water lines as follows:
 - a. Six (6) inch through fourteen (14) inch – one thousand (1,000) feet.
 - b. Sixteen (16) inch through twenty (20) inch – two thousand (2,000) feet.
 - c. The total number of valves at any intersection shall equal the total number of lines leading out from the intersection point minus one (1), three (3) valves for a cross, and two (2) valves for a tee, unless otherwise specified.

B. Valve Types.

1. Valve types (all valves shall open counterclockwise and have mechanical joints):
 - a. Six (6) inch through fourteen (14) inch – gate valves.
 - b. Sixteen (16) inch through twenty (20) inch – butterfly valves.

C. Valve Location.

1. All water lines shall be valved within the street rights-of-way. Valves shall not be placed under or within two (2) feet of ultimate pavement, except as specifically approved by the City Engineer.
2. Valves shall be located on the projection of intersecting street rights-of-way lines, or at the curb return adjoining a paved street across the main. Tapping Sleeves and Valves are excluded from this requirement.
3. Fire hydrants shall be isolated from the service line with a valve located at the fire hydrant branch. This valve shall not be located in the slope or flowline of ditches on open ditch streets.
4. Intermediate valves, not located on the projection line of the rights-of-way line, shall be located on lot lines or five (5) feet from the fire hydrants. The valves are not set in driveways or sidewalks.
5. Locate valves a minimum of nine (9) feet horizontally from sanitary sewer crossings.

D. Fire Hydrants.

1. Spacing.
 - a. Single Family Residential Development – five hundred (500) foot spacing.
 - b. Commercial, Multi-Family Developments and Multiple Single-Family Dwellings – three hundred (300) foot spacing, and at all street intersections.
2. Location in or along street rights-of-way.
 - a. Fire hydrants shall be located at street intersections where possible, but in any case, not more than the spacing noted in 1a and 1b.
 - b. Locate fire hydrants at P.C.'s of the intersection curb radius, three (3) feet behind the existing curb or location of a future curb.
 - c. On all TxDOT highways, county roads and open-ditch streets, fire hydrants shall be set within three (3) feet of rights-of-way lines.

Fire hydrants lead valves shall not be located in the slopes or flowlines of ditches.

- d. Fire hydrants located between rights-of-way intersections should be set at a lot line, however, this location may be adjusted five (5) feet either way to miss driveways or other obstructions, in which case the fire hydrant should not be closer than three (3) feet from curbed driveways or five (5) feet from non-curbed driveways.
 - e. Fire hydrants shall not be installed within nine (9) feet of a sanitary sewer system under any condition.
3. Location of fire hydrants outside the street rights-of-way.
- a. The City Fire Marshal will establish and approve the location of fire hydrants in apartment complexes, and platted private street developments within the City.
 - b. Locate fire hydrants in protected, easily accessible areas behind curb lines.
 - c. For fire hydrants, which are located adjacent to water lines constructed in ten (10) foot wide waterline easements, the fire hydrant shall be centered in a minimum ten (10) foot by ten (10) foot separate easement.
 - d. For commercial and multi-family developments, provide isolation valves at each end of fire loops requiring on-site fire hydrants.
4. Fire Flow Requirements for Buildings.
- a. The minimum fire flow requirements for one (1) and two (2) family dwellings, having a fire-flow calculation area which does not exceed three thousand six hundred (3,600) square feet, shall be one thousand (1,000) gallons per minute. Fire flow and flow duration for dwellings having a fire-flow calculation area in excess of three thousand six hundred (3,600) square feet shall not be less than that specified in Exhibit A – Table B105.1 of the International Building Code, as adopted and amended by ordinance.
5. Fire hydrants should be audited for flow and pressure, and painted per City Technical Specifications.

E. Fittings.

1. All fittings shall be identified and described on the construction plans.
2. Fittings are not permitted in fire hydrant leads, except as specifically approved by the City Engineer.
3. Water line fittings shall be mechanical joints only. Push-on joints may be used at special locations, if specifically approved by the City Engineer.
4. All plugs shall be provided with retention clamps.
5. Polyethylene tube encasement shall conform to the minimum requirements of "Polyethylene Encasement for Gray and Ductile Cast-Iron Piping for Water and Other Liquids", ANSI/AWWA C105, current revision. Soils within the project shall be tested in accordance with Appendix A of ANSI/AWWA C105 to adequately determine the requirements for encasement.
6. Concrete thrust blocking shall be required on all bends, tees, plugs and combinations thereof.
7. All fittings and fire hydrants shall be tied together with three-quarter (0.75) inch stainless steel all-threads and I-bolts or approved equal (i.e., Mega Lug Fittings).

F. Water main service.

1. Water main service for lines in or along street rights-of-way.
 - a. Meters two (2) inch and smaller – shall be located in rights-of-way, water line easements, or in a minimum five (5) foot x five (5) foot separate water meter easement on private property.
 - b. Meters three (3) inches and larger – shall be located at the property line or in a minimum ten (10) foot x twenty (20) foot separate water meter easement if necessary.
 - c. Meters shall be located in areas with easy access and protected from traffic and adjacent to rights-of-way whenever possible.
 - d. Meters shall not be located in areas enclosed by fences.

- e. Separate tap and service leads shall be designed for each meter.
 - f. Meters larger than two (2) inches must have a bypass assembly and coupling for easy change out. Contact the Public Works Department for additional requirements.
 - g. The minimum sized line for two (2) meters shall be three (3) inches or larger.
- 2. For proposed apartments or town homes in private street developments, provide one (1) master meter sized for the entire development. Exceptions may be granted by the City Engineer for unusual circumstances. If an exception is approved, multiple meters shall not be interconnected.
 - 3. All sprinkler and irrigation lines shall be equipped with a backflow prevention device according to its application as required by current TCEQ regulations. The backflow assembly shall be located after the water meter for an irrigation system, and in a vault near the building for a sprinkler system. A certified technician shall test applicable backflow prevention assemblies annually, and submit the results to the City.

1.06 SUBMITTALS:

- A. General – Conform to the following submittal requirements in addition to those of general procedure of the City of Friendswood.
- B. Water Line Sizes – Submit justification, calculations, and locations for proposed six (6) inch lines, and for lines twelve (12) inch and larger, for approval by the City Engineer, unless water line sizes are provided by the City in advance.
- C. Valves – Submit information for approval by the City Engineer with justification and locations for the use of sixteen (16) inch and twenty (20) inch gate valves proposed as substitutes for butterfly valves.
- D. Water Meter Service.
 - 1. A permit shall be obtained from the Building Division for meter services and metered sprinkler connections prior to construction.
 - 2. Requests for more than one (1) service meter on a proposed private street, or a multi-family development, shall be submitted to the Department of Public Works.

- E. Elevated stream or ditch crossings – Submit design calculations for support columns and column spacing.
- F. Master Development Plan – For multiple-phase developments, submit a master development plan along with construction plans.
- G. Backflow Prevention – All irrigation and sprinklers must be equipped with backflow prevention devices per current TCEQ regulations.
- H. A double check backflow prevention assembly is required for three (3) inch and larger lines.

1.07 QUALITY ASSURANCE

Prepare calculations and construction drawings under the supervision of a Professional Engineer licensed to practice engineering in the State of Texas and trained in the disciplines required by the drawings. The final construction drawings must be sealed, signed, and dated by the Professional Engineer licensed to practice engineering in the State of Texas, shall be responsible for the development of the drawings along with their firm's registration information.

2.0 EXECUTION

2.01 RESEARCH REQUIREMENTS:

- A. Research existing utility and rights-of-way information.
- B. Verify that no restrictions exist that will deny approval of the project concept.

2.02 DESIGN ANALYSIS:

- A. Water line sizes – Prepare narrative justification and calculations for proposed six (6) inch lines, and for lines twelve (12) inches and larger, unless sizing is provided by the City in advance.
- B. Elevated stream or Ditch Crossings – Prepare design calculations for support columns and column spacing.

2.03 DRAWINGS:

- A. General: Conform to the following drawing requirements, in addition to those identified within the City's Standard Water Line Details, the City's Technical Specifications, and within "Section I – Graphic Requirements" of this manual.

B. Appurtenances – Identify, describe, and enclose in rectangular box on drawings.

1. Valves

- a. Designate six (6) inch through twelve (12) inch gate valves with box as GV&B.
- b. Provide complete description and size for other valves.

2. Water meters, service leads, and metered sprinkler connections.

- a. Show the location of service line tees, tapping sleeve valves, valve boxes, and temporary plugs to be installed to serve future three (3) inch or larger meters.
- b. Develop plan and profile sheets for four (4) inch and larger leads, and connections that cross public rights-of-way or other utilities.

C. Construction features.

Show all special construction features required to complete the project, in a safe, convenient, and economical manner.

D. Auger Construction.

1. If the construction is predominately open cut, all portions of the street that must be augured shall be clearly shown on drawings by location and length. Include designation of sections at trees with six (6) inches or larger diameters, located within ten (10) feet of a water line.
2. Curbs – Include a requirement on drawings for construction of ADA ramps at street intersections where curbs are to be removed, or are damaged by water line construction. Conform to the City's Standard Details for ADA ramps.

SECTION IV

STREET PAVING DESIGN REQUIREMENTS

1.0 GENERAL

- A. Should any portion of this Section conflict with the Subdivision Ordinance or the Zoning Ordinance, the more stringent of the latter two (2) shall govern.
- B. The City Engineer shall have the final interpretation of any provisions in this Design Criteria Manual.
- C. The City Engineer has the right to issue administrative orders or design criteria modifications for just cause related to any provisions or conditions in this Design Criteria Manual.

1.01 CHAPTER INCLUDES

Geometric design guidelines for streets, criteria for street paving, and standard paving notes for drawing call outs.

1.02 REFERENCES

- A. ASHTO – American Association of State Highway and Transportation Officials.
- B. ASTM – American Society for Testing Materials.
- C. ACI – American Concrete Institute.
- D. TMUTCD – Texas Manual on Uniform Traffic Control Devices.
- E. City of Friendswood Standard Details and Technical Specifications, latest version. These can be downloaded from www.friendswood.com/publications.

1.03 DEFINITIONS

- A. Geotechnical Engineer – An engineer certified by the American Association for Laboratory Accreditation (A2LA).
- B. HMAC – Hot Mix Asphaltic Concrete.

- C. Curb-and-Gutter Streets – Full-width reinforced concrete pavement or asphaltic pavement with curbs. Curb-and-gutter streets require inlets and underground storm sewers.
- D. Open-Ditch Streets – Full-width reinforced concrete pavement or asphaltic pavement with open ditches. Open-ditch streets do not require underground storm sewers; however, the ditches shall be designed to accommodate the storm water runoff.

1.04 DESIGN REQUIREMENTS

The following design requirements are applicable to all street pavement constructed within rights-of-way.

A. General:

1. All paving and construction plans for all streets shall be approved by the City Engineer.
2. Street design shall conform to all applicable planning tools, such as the Texas Manual on Uniform Traffic Control Devices, major thoroughfare plans, master plans, etc. Other considerations for design shall include street function, street capacity, service levels, traffic safety, pedestrian safety, and utility locations. These additional considerations may affect the minimum requirements set forth herein. Refer to the City of Friendswood Major Thoroughfare Plan for streets requiring additional considerations.
3. Designs shall conform to the City of Friendswood Standard Details and Technical specifications.
4. The use of individual pavers are not allowed in the City of Friendswood rights-of-way. The only exception for use of individual pavers in the rights-of-way is for sidewalks in the Downtown District. Stamped concrete is allowed in the City of Friendswood rights-of-way.
5. No asphalt turnouts are allowed in the City of Friendswood rights-of-way.
6. Concrete mix design shall conform to the City of Friendswood Technical Specifications.

B. Minimum Width Requirements for Concrete Paving:

1. Curb-and-gutter concrete and HMAC streets for low-density residential developments such as SFR, MFR-L, and MFR-GHD: twenty-eight (28) feet from back of curb to the back of curb.
2. Pavement for open-ditch streets used for only SFR residential developments with minimum one hundred twenty (120) foot wide lots: twenty-six (26) feet from edge of pavement to edge of pavement.
3. Streets for medium to high density residential, commercial, and collector streets: forty-one (41) feet from back of curb to back of curb, or from edge of pavement to edge of pavement.
4. Streets for major thoroughfares or boulevards: two (2) divided pavement sections of twenty-five (25) feet from back of curb to back of curb [Four (4) lane divided roadway], or two (2) pavement sections thirty-four (34) feet from back of curb to back of curb [six (6) lane divided].
5. Radius for cul-de-sac pavement on any street shall be a minimum of fifty (50) feet, measured from the face of curb. Radius of rights-of-way for cul-de-sacs shall be ten (10) feet greater than the cul-de-sac pavement, but not less than sixty (60) feet.

C. Minimum Thickness and Reinforcement Requirements for Concrete and HMAC Pavement:

The following requirements shall be the minimum allowable. Pavement thickness and reinforcement, not less than the minimum requirements, shall be designed by a Professional Engineer licensed to practice engineering in the State of Texas and who is responsible for the project. The design shall be based on a current soils analysis and recommendations conducted by a qualified geotechnical engineer.

1. For pavement widths twenty-eight (28) feet from back of curb to back of curb or twenty-six (26) feet from edge of pavement to edge of pavement:
 - a. Minimum concrete slab thickness shall be six (6) inches with a f_c equal to three thousand (3,000) psi, and reinforcement shall be Grade 60, $f_y = 60,000$ psi, #4 deformed reinforcing bars shall be spaced at sixteen (16) inches center to center, both ways and with a minimum lap length of eighteen (18) inches. Expansion joints shall be placed at the end of each curb return, and at a maximum

- spacing of sixteen (60) feet with control joints every twelve (12) feet.
- b. Minimum stabilized subgrade thickness shall be six (6) inches.
2. For pavement widths greater than twenty-eight (28) feet from back of curb to back of curb, or twenty-six (26) feet from edge of pavement to edge of pavement, and for boulevard or major thoroughfare sections:
- a. Minimum concrete slab thickness shall be seven (7) inches with $f_c = 3,000$ psi and reinforcement shall be Grade 60, $f_y = 60,000$ psi, #4 deformed reinforcing bars shall be spaced at sixteen (16) inches center to center, both ways, and with minimum lap length of eighteen (18) inches. Expansion joints shall be placed at the end of each curb return, at a maximum spacing of sixty (60) feet on both residential and collector streets, boulevards, and major thoroughfares, with control joints every twelve (12) feet.
 - b. Minimum stabilized subgrade thickness shall be eight (8) inches.
3. For HMAC pavements:
- a. Minimum thickness shall be two (2) inches.
 - b. Minimum subgrade thickness shall be eight (8) inches of stabilized crushed concrete or limestone, and six (6) inches of lime-stabilized subgrade.
- D. Subgrade Treatment: The geotechnical engineer shall base the depth of the subgrade stabilization on the structural number (SN) in conjunction with pavement thickness design. The following is general guidance for subgrade treatment:
- 1. For subgrade soil conditions with a clay content of ten (10.0) percent or higher, and a plasticity index (PI) of ten (10) or more, the subgrade shall be stabilized with lime. Subgrade shall be stabilized with a minimum six (6) percent lime by weight at required thickness, and compacted to ninety-five (95) percent standard Proctor density. Alternative subgrade stabilization may be substituted when specific recommendations are made by the geotechnical engineer for the project, and when specifically approved by the City Engineer.

2. For subgrade soil conditions containing clean sand with no clay content, the subgrade shall be stabilized with cement.
- E. Requirements for Intersections, Turnouts, Transitions, and Boulevards or Thoroughfares:
1. At a "T" intersection with a street that has not been improved to its ultimate width, the concrete pavement shall be stopped either at the rights-of-way line, or the end of the curb return, whichever would require less concrete removal at a future date.
 2. For roadway turnouts placed at an existing street intersection, the turnout shall be designed to fit the ultimate pavement width of the intersecting cross street and then transitioned to the existing roadway.
 3. The transition length for meeting an open-ditch street, shall be fifty (50) feet for street widths less than or equal to twenty-eight (28) feet from back of curb to back of curb; seventy-five (75) feet for twenty-nine (29) feet to forty (40) feet from back of curb to back of curb; and one hundred (100) feet for forty-one (41) feet from back of curb to back of curb or greater.
 - a. Streets other than concrete shall have transitions with a minimum thickness of eight (8) inches of lime-stabilized subgrade, six (6) inches of hot-mix asphaltic concrete base, or approved equal, with two (2) inches of hot-mix asphaltic surfacing.
 - b. Concrete streets shall have transitions with a minimum thickness of six (6) inches of stabilized subgrade and six (6) inches of concrete pavement.
 4. When paving only one section of a proposed two-section thoroughfare or boulevard (boulevard section), all left-turn lanes and esplanade crossovers shall be paved to the centerline of the street right-of-way.
- F. Requirements for Ditches on Open-Ditch Streets:
1. Minimum grade on ditches shall be two-tenths (0.2) percent.
 2. Ditch capacity shall be designed to handle the storm water runoff as determined within "Section V – Storm Drainage" section of this manual.

3. The maximum side slope shall not be steeper than three (3) horizontal to one (1) vertical.
4. Culverts for roadside ditches only shall be designed to carry the storm water runoff, but shall not be less than eighteen (18) inch diameter pipe constructed of reinforced concrete.

G. Requirements for Pavement on Curb-and-gutter Streets:

1. Inlet spacing:
 - a. Curb inlets shall be spaced and sized to intercept the calculated storm water runoff for the design storm. The design water surface elevation for the design storm flow at the inlet, shall be less than or equal to the top of curb adjacent to the inlet.
 - b. Maximum travel distance of water in the street from a high point to a curb inlet shall be three hundred (300) feet on major thoroughfares, boulevards, commercial streets and collector streets unless otherwise approved by the City Engineer. The maximum travel distance of water in the street from a high point to a curb inlet permitted on residential streets shall be three hundred (300) feet unless otherwise approved by the City Engineer.
 - c. Maximum drop of grade tangents from opposite directions to a common inlet shall be one and one-half (1.5) feet.
 - d. Curb inlets shall be located on the intersecting side street at an intersection with a higher classification street. Location of curb inlets required on a major thoroughfare, at intersections, shall be specifically approved by the City Engineer.
 - e. Backfill around inlets below grade shall be one and one-half (1.5) sacks per cubic yard of cement-stabilized sand, and to the top of the first stage of inlet.
2. Design gutter grade shall be three-tenths (0.3) percent; if the gutter grade is less than three-tenths (0.3) percent and approved by the City Engineer, then the City Engineer shall determine the required inlet spacing. The minimum acceptable gutter grade shall be two-tenths (0.2) percent.

3. Maximum cut from finished grade at property line to top of curb, shall be one and three-quarters (1.75) feet.
4. Minimum grade shall be one (1.0) percent fall around intersection turnout for a minimum radius of twenty-five (25) feet. Grades for larger radius shall be determined on an individual basis.
5. Vertical curves shall be installed when algebraic differences in intersecting grades exceed one (1.0) percent. Elevations shall be shown at ten (10) foot intervals through vertical curves. Maintain a minimum of three-hundredths (0.03) foot elevation change at ten (10) foot intervals by altering the calculated elevations.
6. When a curb-and-gutter intersects a drainage ditch, the elevation of the adjacent gutter shall be above the design water surface elevation in the ditch.
7. Minimum gutter grade around a cul-de-sac shall be six-tenths (0.6) percent.
8. Curves on major thoroughfares shall be superelevated in accordance with AASHTO whenever the centerline radius of any lane of pavement is less than two thousand (2,000) feet.
9. The amount of cross slope over the pavement section shall be shown on the drawings. The required cross slope shall be three-eighths (3/8) inch per foot from curb line to quarter point, and one-quarter (1/4) inch per foot from quarter point to the center line, and one-quarter (1/4) inch per foot for left-turn lanes.
10. A minimum grade of four-tenths (0.4) percent around the longest radius is required on an L-Type street intersection.
11. When meeting an existing upright curbed street, top of new curb elevations shall be designed to meet an elevation six (6) inches above the existing gutter/pavement, or gutters shall be matched and new top of six (6) inch curb transitioned to top of existing curb. At existing inlets, top of new curb elevations shall be designed to match existing top of existing inlets.
12. When the curb elevations are not established below the natural ground, fill lines shall be shown on the drawings and shall be of sufficient height to

ensure a minimum of three-eighths (3/8) inch per foot transverse slope toward the curb from the property line between a point, two (2) feet outside the rights-of-way and the top of curb. If this type of fill is required, and the pavement is adjacent to a nonparticipating property owner, fill easements from this property owner shall be obtained, filed, and a copy of the easements shall accompany the final drawings. Construction of this nature will require back-slope drainage design to prevent trapping storm water runoff.

13. Elevations and grades shall be labeled for all tops of curb. Centerline elevations and grades are acceptable for open-ditch sections only.

H. Requirements for Inlets on Curb-and-gutter Streets:

1. Type "BB," with grate or plate tops, or type "H-2" inlets, shall be used on all curb-and-gutter streets depending on storm water runoff requirements, unless otherwise approved by the City Engineer.
2. Inlets shall be placed at the end of pavement in order to eliminate direct drainage of storm water from the pavement gutter into an open-ditch or onto adjacent property.
3. On open-ditch streets, place stub-outs with ring grates from inlets to ditches.

I. Requirements for Curbs and Sidewalks:

1. For curbs located along the outside edges of residential streets, the standard dimensions shall be four (4) inches tall and twelve (12) inches wide. Curb height for streets other than residential shall be six (6) inches tall. The curb height on all esplanades shall be six (6) inches.
2. Sidewalks are required as set out in Section III of the Subdivision Ordinance and Section 70-66 of the Code of Ordinances. Where sidewalks are required, they shall have a minimum width of four (4) feet, except on TxDOT rights-of-way where the minimum width shall be five (5) feet.
3. Sidewalk wheelchair ramps shall be required at all intersections, and at or through all driveways where required. The design and installation of such ramps shall comply with Texas Accessibility Standards Architectural Barriers requirements.

4. All sidewalks shall be constructed in accordance with the City of Friendswood Standard Details, including through all driveways where required. The design and installation of such sidewalks shall comply with the Texas Accessibility Standards Architectural Barriers requirements.
5. The location of all proposed and existing sidewalks shall be shown on the construction drawings.

J. Requirements for Miscellaneous Items:

1. The type and amount of subgrade treatment shall be shown on the drawings.
2. Paving headers shall be placed at the end of all concrete pavements.
3. All concrete to be removed, shall be saw cut one half of the pavement depth before removal.
4. Sight distance requirements shall be based on the latest version of the AASHTO design practices.
5. Standard City of Friendswood barricades shall be placed at the end of all dead-end streets not terminating in a cul-de-sac.
6. The appropriate drainage agency approval shall be obtained before City approval is granted if the design involves a drainage way or other drainage facility.
7. A letter of agreement from the affected pipeline company(s) is required when any paving is placed over a transmission pipeline or any utility line is placed over or under such lines.
8. When new concrete pavement meets existing concrete pavement, horizontal dowels shall be used if no exposed reinforcing steel for interconnection with new pavement exists. Horizontal dowels shall be Grade 60, #5 reinforcing bars, twenty-four (24) inches long, drilled and embedded twelve (12) inches into the center of the existing slab and epoxied. Dowels shall be spaced at sixteen (16) inches center to center, unless otherwise specified.

9. Dead-end streets or ends of concrete streets designed to be extended in the future shall have paving headers and twelve (12) inches of reinforcing steel exposed beyond the pavement, coated with asphalt and wrapped with burlap, or shall have paving headers and dowel type expansion joint for future pavement tie-in.
10. Pavement extensions shall connect to the existing pavement as shown on the City of Friendswood Standard Details.
11. A design for concrete pavement thickness is required for all pavements within industrial areas and on major thoroughfares. Concrete pavement thickness design shall be based on the latest version of the AASHTO design procedures for rigid pavements.
12. The pavement structure for each roadway shall be designed based on soil data from the site, and based on the anticipated traffic volume, loading, and service life of the proposed pavement structure. The design engineer is responsible for ensuring that the pavement structure is designed to withstand the anticipated loads on the roadway.

1.05 APPURTENANCES – Reserved

1.06 SUBMITTALS – Reserved

1.07 QUALITY ASSURANCE

- A. All construction drawings and specifications shall be prepared by or under the supervision of a Professional Engineer licensed to practice engineering in the State of Texas, and all documents shall be sealed, dated, and signed by the engineer responsible for their preparation along with their firm's registration information.
- B. All geotechnical testing, environmental, and similar services for design and testing shall be performed by or under the supervision of a Professional Engineer licensed to practice engineering in the State of Texas, and trained in the science of soil analysis. All design and testing reports and documents shall be sealed, dated, and signed by the engineer responsible for their preparation along with their firm's registration information.

2.0 EXECUTION

2.01 RESEARCH REQUIREMENTS – Reserved

2.02 DESIGN ANALYSIS

- A. All pavement design shall be supported by calculations to establish the required thickness and reinforcement.
- B. The appropriate geotechnical soils report shall be the basis for design considering the use, loading, and life span of the proposed pavement.
- C. All drainage improvements shall be designed to accommodate the anticipated storm runoff.

2.03 DRAWINGS

- A. Construction drawings shall be prepared in compliance with the City of Friendswood Design Criteria Manual, Section I – Graphic and Design Requirements.
- B. Refer to The City of Friendswood Design Criteria Manual, Appendix B, Figure 1 “Geometric Street Design Standards” for additional information and guidance.

SECTION V

STORM DRAINAGE DESIGN REQUIREMENTS

1.0 GENERAL

- A. Should any portion of this Section conflict with any provisions of the Subdivision Ordinance, Zoning Ordinance, the Galveston County Consolidated Drainage District or the Harris County Flood Control District, the more stringent of the latter four (4) will govern.
- B. The City Engineer shall have the final interpretation of any provisions in this Design Criteria Manual.
- C. The City Engineer has the right to issue administrative orders or design criteria modifications for just cause related to any provisions or conditions in this Design Criteria Manual.

1.01 CHAPTER INCLUDES

Criteria for the design of storm drainage improvements.

1.02 REFERENCES

- A. City of Friendswood Standard Details and Technical Specifications, latest version. These can be downloaded from www.friendswood.com/publications.
- B. City of Friendswood Flood Damage Prevention Ordinance, Chapter 34 of the Code of Ordinances, and any subsequent revisions.
- C. Galveston County Consolidated Drainage District Criteria Manual.
- D. Harris County Flood Control District Design Criteria Manual. Ordinance No. T2007-20 amends the Flood Damage Prevention Ordinance by adopting the Harris County floodplain maps as revised on June 18, 2007.
- E. TX DOT Bridge Division Hydraulic Manual, the latest edition.
- F. National Weather Service Documents – TP-40 Rainfall Frequency Atlas of the United States.
- G. Harris County/City of Friendswood Memorandum of Understanding regarding maintenance of Harris County Hydraulic and Hydrologic models.

1.03 DEFINITIONS

- A. Acceptance Procedures – For projects in Galveston County, the Galveston County Consolidated Drainage District must accept and approve all detention ponds or other drainage facilities entering their system before the City of Friendswood accepts the infrastructure. The acceptance of the facility shall be placed on the next available Board agenda for approval and acceptance subject to the contractor's one (1) year maintenance period. For projects in Harris County, the Harris County Flood Control District will accept and approve all detention ponds as applicable.
- B. Conduit – any open or closed device for conveying storm water.
- C. Development – A change in land use that alters the impervious coverage of the tract of land. Impervious cover includes, but is not limited to, concrete, asphalt, stabilized soil, tennis courts, water features, pools, sidewalks, crushed concrete, limestone, and roofing.
- D. Drainage Area Map – Area map of a watershed which is subdivided to show each area served by each subsystem.
- E. Design requirements – The drainage criteria developed by the City of Friendswood, and complemented by those of the Galveston County Consolidated Drainage District and the Harris County Flood Control District, are intended to provide design guidelines for protection of all areas of the City from structural flooding resulting from a one hundred (100) year storm event. This is accomplished with the application of various drainage enhancements such as storm sewers, roadside ditches, open channels, detention, and sheet flow runoff. The combined system is intended to prevent structural flooding from extreme events up to a one hundred (100) year storm; all development must account for the one hundred (100) year storm event as further detailed in this Section.
- F. FEMA – Federal Emergency Management Agency
- G. Flood Control – The City of Friendswood is a participant in the National Flood Insurance Program. The intent of the flood insurance program is to make insurance available at a reasonable cost by providing for measures that may reduce the likelihood of structural flooding.
- H. GCCDD – Galveston County Consolidated Drainage District.
- I. HCFCD – Harris County Flood Control District.

- J. Hydraulic Grade Line – A line representing the pressure head available at any given point within the drainage system.
- K. In-Fill Development – Development of open tracts of land in areas where the storm drainage infrastructure is already in place and takes advantage of the existing infrastructure as a drainage outlet.
- L. Public storm sewers – Defined as sewers and appurtenances that provide drainage for public rights-of-way, more than one private tract, and are located in public rights-of-way or drainage easements.
- M. Private storm sewers – Defined as sewers and appurtenances that provide drainage for a private development, one or more than one private tract, and are located in private drainage easements.
- N. Rainfall frequency – Probability of a rainfall event defined by a percent chance of occurring in any given year. Information on rainfall frequency is published by the National Weather Service. For the purpose of storm drainage design, the following frequencies are applicable:
 - 1. Five (5) year frequency – a rainfall intensity having a twenty (20) percent probability of occurrence in any given year or nominally likely to occur once every five (5) years.
 - 2. Ten (10) year frequency – a rainfall intensity having a ten (10) percent probability of occurrence in any given year or nominally likely to occur once every ten (10) years.
 - 3. Twenty-five (25) year frequency – a rainfall intensity having a four (4) percent probability of occurrence in any given year or nominally likely to occur every twenty-five (25) years.
 - 4. One hundred (100) year frequency – a rainfall intensity having a one (1) percent probability of occurrence in any given year or nominally likely to occur every one hundred (100) years.
- O. Relationship to the Platting Process – Approval and review of storm drainage is a part of the review process for planning and platting of new developments. The review of storm drainage is overseen by the Community Development Department, Public Works Department, and the Galveston County Consolidated Drainage District.
- P. Sheet Flow – Overland storm water run-off that is not conveyed in a defined conduit.

- Q. Storm Sewer – Storm sewers and roadside ditch conduits are designed as a balance of capacity and economics. These conduits are designed to convey less intense, more frequent rainfalls with the intent of allowing for traffic movement on streets during these events.
- R. Street Drainage – When rainfall events exceed the capacity of storm sewer systems, the additional runoff is intended to be stored, detained, or conveyed overland in a manner that reduces the threat of flooding to structures. Street ponding of a short duration is anticipated and street drainage is designed accordingly to contribute to the overall capability of the drainage system.

1.04 DESIGN REQUIREMENTS

All designs of drainage facilities shall meet the requirements of the City of Friendswood Standard Details and Technical Specifications.

A. Determination of Runoff

Design Storm Events – All drainage improvements shall be designed for the following storm frequencies as established by the City of Friendswood, Galveston County Consolidated Drainage District, and Harris County Flood Control District.

<u>Type of Facility</u>	<u>Frequency</u>
Road Side Ditch	five (5) year
Storm Sewers	five (5) year
Channels/Storm Sewers/Culverts draining One hundred (100) acres or less	twenty-five (25) year
Creeks/Channels/Culverts draining One hundred (100) acres or more	one hundred (100) year

B. The Rational Method shall be used for determining the peak flow rate in the sizing of all drainage improvements.

1. Time of Concentration (in minutes) is the time required for peak runoff, from the entire upstream contributing area, to reach the point of interest. Time of concentration can be calculated based upon an analysis of the actual travel time from the most remote point in the drainage area. The travel path should be clearly denoted and a sketch included in the design calculations.

$$t_c = D/60V + 10 \text{ (minutes)}$$

D = flow distance (ft)
V = flow velocity (ft/sec)

For purposes of calculating t_c , the following velocities are recommended:

$V = 1$ ft/sec for overland flow

$V = 1.5$ ft/sec for flow across paved surfaces or along gutter flowlines.

$V = 2$ ft/sec for flow in a ditch or channel

$V = 3$ ft/sec for flow in a storm sewer

2. Rainfall Intensity (inches/hour) shall be calculated using the following formula:

$$I = \frac{b}{(d + t_c)^e}$$

b, d, and e values are derived from a single frequency rainfall intensity graph.

b = the y-intercept of the straight line

d = a constant used to adjust the relationship to plot as a straight line

e = the slope of the straight line

Values typically used in Friendswood are listed below:

$t_c \leq 60$ min			
Rainfall			
Frequency	b	d	e
3-year	90.6	19.5	0.803
5-year	92.9	19.7	0.788
10-year	107.9	23.6	0.781
25-year	98.5	24.0	0.729
50-year	107.0	21.1	0.734
100-year	90.8	16.5	0.685

$t_c > 60$ min			
Rainfall			
Frequency	b	d	e
3-year	71.0	8.4	0.774
5-year	70.1	7.7	0.752
10-year	96.6	17.2	0.770
25-year	89.2	10.4	0.736
50-year	86.5	10.0	0.709
100-year	84.0	11.0	0.679

3. The Rational Method is a method for calculating the peak flow rate for a storm drain system. The formula for determining the peak flow rate is:

$$Q = C_f CIA$$

Where:

Q = Flow rate (cubic feet per second (cfs))

C_f = Frequency factor, the product of C_f and C should not exceed 1.0

C = Runoff Coefficient

I = Rainfall intensity (inches/hour) for a given storm frequency
(Typically 5 year, 25 year, and 100 year).

A = Area (acres)

For the purposes of peak flow calculations, use the following “ C_f ”

C_f = 1.00, for storm frequencies of 10 years or less

C_f = 1.10, for storm frequencies of 25 years

C_f = 1.25, for storm frequencies of 100 years

For the purposes of peak flow calculations, use the following runoff coefficient “C,” which are in no way related to the lot coverage percentage as defined in the Zoning Ordinance.

Land Use Type	Run-off Coefficient
Raw Undeveloped Acres	0.20
Improved Undeveloped Acres (i.e., mowed, filled, re-graded, etc.)	0.30
Parkland	0.40
Residential:	
SFR-Estates	0.45
SFR	0.55
Multi-family:	
MFR-GHD	0.65
MFR-L	0.75
MFR-M	0.80
MFR-H	0.85
MHR	0.85
Commercial/Industrial:	
OPD/BP	0.90
DD/CSC/NC	0.95
LI/I	0.95
Pond (detention and amenity)	1.00

Alternatively, for estate-sized lots [greater than two (2.0) acres], the runoff coefficient “C” in the Rational Method formula can be calculated from the equation:

$$C = 0.6Ia + 0.2$$

Where:

C = watershed coefficient

Ia = impervious area/total area

If the alternate form is to be submitted, the calculation of the runoff coefficient “C” shall be provided as part of the drainage calculations.

C. Design of storm sewers

1. Design Frequency

a. Areas of New Development

The design storm event for sizing storm sewers for new development areas shall be a five (5) year storm. In any case where new development interferes with the natural sheet flow of the existing adjacent land, the storm system shall accommodate the runoff. Stubbed out streets next to undeveloped areas shall have storm sewer lines continuing to an approved outfall.

b. In-fill Development

1) An existing storm sewer and structures shall be evaluated using a five (5) year storm, assuming no development takes place. The storm sewer and structures shall then be evaluated with the development in place.

a) If the proposed development has a lower or equal impervious cover, no modifications to the existing storm sewer system are required.

b) If the hydraulic gradient of the existing storm drain is below the top of the curb, no improvements to the existing storm sewer system are required.

c. Private Drainage Systems

- 1) Storm sewers for private drainage systems shall conform to the City of Friendswood Technical Specifications and Standards Details for public drainage systems. Minimum diameter pipe for a private storm sewer system is ten (10) inches.
 - a) Unless otherwise approved by the City Engineer, all private drainage systems shall be constructed in conformance with the public storm sewer standards.
 - b) An approved permit shall be obtained from the City before any work shall be done on a private drainage system and shall include plan and profile sheets detailing the scope of the work, with elevations.
 - c) Open ditch areas may be converted into storm sewer lines with the approval of a Development Permit and Specifications for Residential Storm Sewer Installation Specification Form. Guidelines for the process are defined in Appendix F of this Design Criteria Manual.
 - d) Private storm sewer connections to public storm sewers shall occur at a manhole, or at the back of an inlet, as approved by the City Engineer.

2. Pipe Velocity and Slope Design

- a. All storm drains shall be designed by the application of Manning's Equation and the Continuity Equation.

Manning's Equation:

$$V = (1.486/n) R^{2/3} S^{1/2}$$

Where

V = velocity (ft/sec)

R = hydraulic radius (area in square feet/wetted perimeter in feet)

S = slope of energy line in feet/feet (same as conduit bottom slopes for uniform flow)

n = coefficient of roughness

- n = 0.013 for concrete pipes,
- n = 0.024 for CMP (Corrugated Metal Pipe)
- n = 0.011 for PVC (Polyvinyl Chloride)
- n = 0.010 for HDPE (High Density Polyethylene)

**Note: All public storm sewers in or on public rights-of-way and public drainage easements shall be constructed of RCP (Reinforced Concrete Pipe) unless otherwise approved by the City Engineer. Manning's roughness coefficients for CMP, PVC, and HDPE shall be used for storm sewers on private property only. CMP pipes shall be used for public storm sewers only upon specific approval of the City Engineer and/or the applicable drainage district entity (GCCDD or HCFCD).*

Continuity Equation:

$$Q = VA$$

Where

Q = discharge (cfs)

V = velocity (ft/sec)

A = wetted cross sectional area of conduit (A2)

- b. Design velocities shall be three (3) feet per second with the pipe flowing full.
- c. Maximum velocities shall not exceed seven (7) feet per second without the approval of the City Engineer.
- d. Minimum Public Storm Sewer Pipe Slopes:

Pipe Diameter	% Slope
18"*	0.26
24"	0.18
30"	0.14
36"	0.11
42"	0.08
48"	0.07
54"	0.06
60"	0.05
*Used for Inlet leads only.	

- e. For pipe sizes not listed above, the minimum slope shall be determined utilizing a design velocity of three (3) feet per second.

3. Pipe Sizes and Placement

- a. Public storm sewer lines and inlet leads shall be a minimum of twenty-four (24) inch inside diameter and eighteen (18) inch inside diameter, respectively, or equivalent. Box culverts shall be at least two (2) feet x two (2) feet inside dimension.
- b. Larger pipes located upstream shall not flow downstream into smaller pipes unless it is intended for detention requirements.
- c. Match crowns of pipe at any size change unless severe depth constraints prohibit such, or engineering calculations show flowlines should be matched.
- d. Locate public storm sewers in public street rights-of-way, in parallel and adjoining easements, or in other approved easements. Easements shall be at least twenty (20) feet wide, and the storm sewer shall be centered in the easement.

4. Starting Water Surface and Hydraulic Gradient

- a. The hydraulic gradient shall be calculated assuming the top of the outfall pipe as the starting water surface.
- b. At drops in pipe flowline, should the upstream pipe be higher than the hydraulic grade line, the hydraulic grade line shall be re-calculated assuming the starting water surface to be at the top of pipe at that point.
- c. For the design storm, the hydraulic gradient shall at all times be below the gutter line elevations at any point along the street.
- d. Hydraulic grade lines shall be shown on all profile drawings.

5. Manhole Locations

Manholes are required at the following locations:

- a. Size or cross section changes.
- b. Inlet lead and conduit intersections.
- c. Changes in pipe grade.

- d. Street intersections.
- e. A maximum spacing of six hundred (600) feet measured along the conduit run.
- f. Manholes shall not be placed or located in driveway or sidewalk areas.
- g. Adjust manhole frames and covers within the limits of the pavement to meet the proposed final top of slab.

6. Inlets

- a. Locate inlets at all low points in gutter.
- b. Valley gutters across intersections are not permitted.
- c. Inlet spacing is generally a function of gutter slope. For minimum gutter slopes of three-tenths (0.3) percent, the maximum spacing of inlets shall result from a maximum gutter run of three hundred (300) feet from a high point in the pavement to an inlet on a continuously graded street section, for a maximum spacing of six hundred (600) feet between inlets.
- d. If gutter slopes are less than three-tenths (0.3) percent, the City Engineer shall determine the inlet spacing. The acceptable minimum gutter grade is two-tenths (0.2) percent.
- e. Use only Standard Inlets:

Inlet	Application	Capacity
Type A	Parking Lots/Small Areas	2.5 cfs
Type B-B	Residential	5.0 cfs
Type D	Parking Lots	2.0 cfs
Type E	Roadside ditches	20.0 cfs
Type H-2	Residential / Commercial	5.0 cfs

- f. Do not use "Beehive" style grate inlets or other specialty inlets.
- g. Do not use grate top inlets in an unlined roadside ditch.

- h. Place inlets at the end of curb returns on side streets, when such streets intersect streets of a higher classification, unless special conditions warrant otherwise and are approved by the City Engineer.
- i. Storm sewer inlets shall be established in such numbers and in such locations as to effectively drain storm water from paved sections. A graphical plan and calculations of the hydraulic gradient shall be furnished by the design engineer.

D. Consideration of Overland Flow

1. Design Frequency – the design frequency for consideration of overland sheet flow shall consider extreme storm events which exceed the capacity of the underground storm sewer system resulting in ponding and overland sheet flow through the development to the primary drainage outlet.
2. Relationship of Structures to Street – all structures shall be constructed as per the Flood Damage Prevention Ordinance, and shall be higher than the highest level of ponding resulting from the extreme storm event as shown on the latest City adopted flood maps.
3. Calculation of Flow:
 - a. Streets will be designed so that consecutive high points in the street will provide for a gravity flow of drainage to the ultimate outlet.
 - b. The maximum depth of ponding at high points will be the top of curb of streets with curbs, or the elevation of the centerline of roads without curbs.
 - c. The maximum depth of ponding at low points will be nine (9) inches above the gutter elevation of curb of streets with curbs, or three (3) inches above the elevation of the centerline of streets without curbs.
 - d. Sheet flow between lots can be provided only through a defined drainage easement.
 - e. A map shall be provided to delineate the flow direction of the extreme event through a proposed development, and how this flow is discharged to the primary drainage outlet.
 - f. In areas where ponding occurs and no sheet flow path exists, a calculation shall be provided to show that runoff from the one

hundred (100) year event can be conveyed and remain in compliance with the other terms of this Section.

4. Overland flow shall enter outfall drainage facilities (channels or detention ponds) through a storm sewer with its last run sized to convey the one hundred (100) year event. Calculations shall be submitted for sizing the structure and determining that adequate inlet capacity exists.
5. Maintain pre-existing natural overland flow of storm water, and provide protection for adjacent properties from redirected storm water flows.
6. For development greater than five (5) acres, show contours of adjacent properties within two hundred (200) feet, and account for natural and existing overland flow or channelized flows.

E. Design of Open Channels

1. Design Frequency
 - a. Open channels shall be designed according to methods described in the Galveston County Consolidated Drainage District (GCCDD) and Harris County Flood Control District (HCFCD) Criteria Manuals.
 - b. Design standards for channel construction shall follow the requirements specified in the GCCDD & HCFCD Criteria Manuals.
 - c. Design standards for the outfalls into channels shall conform to those in the GCCDD & HCFCD Criteria Manuals.
2. Determination of Water Surface Elevations:
 - a. Water surface elevations shall be calculated using Manning's Equation and the Continuity equation.
 - b. For the design storm event, the water surface for ditches and channels shall be calculated to remain within the banks and at or below the required freeboard.

3. Design of Culverts

Head losses in culverts shall conform to TxDOT Bridge Division Hydraulics Manual, Chapter 4 – Culverts.

F. Design of Roadside Ditches

1. Design Frequency

- a. Roadside ditches are permissible only for single family residential lots having widths larger than, or equal to, one hundred twenty (120) feet.
- b. Design storm event for a roadside ditch shall provide one-half (0.5) foot of freeboard below the edge of pavement, or the natural ground at the rights-of-way line, whichever is lower.
- c. The design must include an extreme event analysis to indicate that adjoining structures will not be flooded.

2. Velocity Considerations

- a. For grass lined sections, the design velocity shall be two (2.0) feet per second during the design storm event. The maximum velocity shall be five (5) feet per second.
- b. A grass lined or unimproved roadside ditch shall have side slopes no steeper than three (3) horizontal to one (1) vertical.
- c. Minimum grades for roadside ditches shall be two-tenths (0.2) percent.
- d. Calculation of velocity shall use a Manning's roughness coefficient of four hundredths (0.04) for earthen sections, and twenty-five-hundredths (0.025) for ditches with paved inverts.
- e. Use erosion control methods acceptable to the City when design velocities are calculated to be greater than three (3) feet per second and are approved by the City Engineer.

3. Culverts

- a. Culverts shall be placed at all driveway and roadway crossings and other locations where appropriate.
- b. Culverts shall be designed assuming inlet control.
- c. Roadside culverts shall be sized based on drainage area. Calculations shall provide for each block based on drainage design criteria presented in this manual.
- d. Cross open channels with roadside culverts no smaller than eighteen (18) inch diameter or equivalent. The size of culvert used shall not create a head loss of more than two-tenths (0.2) feet greater than the normal water surface profile without the culvert.
- e. Use erosion control methods acceptable to the City when design velocities are calculated to be greater than three (3) feet per second and approved by the City Engineer.
- f. Sloped End Treatments (S.E.T.'s) are required on all TxDOT Highways.

4. Depth and Size Limitations for Open Ditches

- a. Residential streets – the maximum depth shall not exceed two and one-half (2.5) feet below the edge of pavement.
- b. Roadside ditch bottoms shall be at least two (2) feet wide.
- c. Ditches in adjoining and parallel easements shall have the top of bank not less than two (2) feet from the outside easement line or edge of pavement when applicable.
- d. Roadside ditch side slopes shall not exceed three (3) horizontal to one (1) vertical.
- e. The design storm event for a roadside ditch shall provide one-half (0.5) foot of freeboard below the edge of pavement, or the natural ground at the rights-of-way line, whichever is lower.

G. Design of Outfalls.

1. Outfall design shall conform to GCCDD and HCFCD standards as applicable.
2. Detention pond and storm sewer outfalls shall be placed one foot above the flowline of the receiving channels, creeks, and detention pond, or two foot above normal water elevation, whichever is greater.
3. Flowlines of storm sewer outfalls shall be located six (6) inches above the flowline of a receiving roadside ditch.

H. Storm Water Detention

1. Application of Detention.
 - a. As a normal consideration, storm water detention shall be required. The use of on-site detention is required in order to mitigate potential damage to existing structures unless: the current infrastructure has been improved and provides mitigation for the development, the City has developed a plan for a detention facility to serve the overall area, the development is within an existing subdivision served by a detention facility that is within the platted boundaries of said subdivision and that has been previously accepted and approved by the City and the GCCDD, or a development qualifies for the purchase of regional detention under certain circumstances enumerated in 1.04.H.8.
 - b. Design calculations for sizing the detention basin and related structures shall be performed by the applicable method described in the following sections.
 - c. All calculations shall be sealed and signed by a Professional Engineer licensed to practice engineering in the State of Texas.
 - d. All commercial and non-residential new developments, additions, or redevelopments will require a new or revised drainage plan for additional impervious cover. The standard minimum rate of detention referenced in paragraph 2 below will apply to this impervious cover.

- e. A parking lot with a curb may be used as part of the detention system, provided that the maximum depth of water over the inlet throat flow line does not exceed nine (9) inches, and the maximum depth in any parking stall does not exceed six (6) inches.
2. Calculation of Detention volume using the Hydrologic Method for Projects of one hundred (100) acres or less.
- a. Minimum Rate of Detention for Projects of one hundred (100) acres or less.

When using any of the methods detailed below for calculating the required amount of detention, the minimum amount of detention provided shall never be less than the following standard minimum rates as follows:

For the purpose of determining the standard minimum rate, all the acreage used in the calculation must include proposed or existing development. Raw/undeveloped acreage may not be included in the calculation to lower the standard minimum rate.

- 1) Commercial Projects – Defined as projects with ninety (90) percent or more impervious cover or a runoff coefficient of nine-tenths (0.9) or larger – Standard minimum rate of six-tenths (0.6) ac.ft. per acre.
- 2) Multi-Family Projects – Defined as projects with eighty (80) percent or more impervious cover or a runoff coefficient of eight-tenths (0.8) or larger – Standard minimum detention rate fifty-five-hundredths (0.55) ac.ft. per acre.
- 3) Residential Projects – Defined as projects with forty (40) percent or more impervious cover or runoff coefficient of fifty-five-hundredths (0.55) or larger – Standard minimum detention rate of five-tenths (0.5) ac.ft. per acre.
- 4) Estate Lot Projects – Defined as projects with less than forty (40) percent impervious cover or a runoff coefficient less than fifty-five-hundredths (0.55) – No Standard minimum detention rate shall apply.

- 5) Mixed Use Projects – The Standard minimum rate of detention shall be determined based upon weighted average of the minimum rates set forth above.

b. Modified Rational Method.

The modified rational method may be used to determine detention storage for all projects less than five (5) acres.

c. Simplified Method

For projects less than five (5) acres, the standard minimum rate may be used in lieu of performing a more complex analysis. This coefficient multiplied by the total acreage will yield the total detention volume required.

d. Optional Detention Storage Methodology for Projects of one hundred (100) acres or less.

The maximum allowable release rate from the detention facility during the one hundred (100) year storm event is the one hundred (100) year peak flow rate from the area under pre-development conditions. The undeveloped peak flow rate shall be determined using the rational method.

The following method will be acceptable for determining storage volume if the simplified method is not utilized.

3. The Triangular Hydrograph Method may be used; or

4. The Unit Hydrograph Method may be used.

For developments with more than one hundred (100) acres, a detailed hydrologic analysis utilizing the HEC-1 or HEC-HMS Flood Hydrograph method shall be required per the applicable governing entities.

5. Calculation of Outlet Size:

Outfalls which utilize a pipe restrictor to control outflow shall use the orifice equation.

a. Reducer or Restrictor Pipes shall be sized as follows:

- 1) Use the following equations to calculate the required outflow orifice:

$$\text{Area of pipe} = \pi d^2/4$$

$$Q = CA (2 gh)^{1/2}$$

$$D = Q^{1/2} / 2.25 h^{-1/4}$$

Where

Q = outflow discharge in cfs.

C = 0.8

h = water surface differential (ft)

D = orifice diameter (ft)

A = area of pipe (ft²)

g = gravity (32.2 ft/s²)

New flow into receiving storm sewer cannot exceed undeveloped flow.

- 2) For head differential in systems outfalling into a roadside ditch or storm sewer, the actual head loss or 1 foot, whichever is greater, shall be used. For all other discharge conditions, use 2 feet, or the difference between one hundred (100) year water surface elevation and the elevation of the twenty-five (25) year storm in the receiving channel, whichever is greater.
- 3) For detention systems outfalling into a public storm sewer, the restrictor shall be sized based upon the peak five (5) year developed flow.
- 4) For detention systems outfalling into a public roadside ditch, the restrictor shall be sized based upon the peak five (5) year undeveloped flow.
- 5) For detention systems outfalling into creeks, channels, or storm sewers sized to carry the twenty-five (25) year or one hundred (100) year storm, the restrictor shall be metered to release the five (5) year, twenty-five (25) year, and one hundred (100) year undeveloped flows.
- 6) Restrictor shall be either the required diameter or the equivalent cross-sectional area. The orifice diameter "D" shall be a minimum of six (6) inches.

- 7) Detention ponds less than 1 acre in size shall have a minimum of 4 inches of freeboard. All ponds one (1) acre or larger in size shall have at least one (1) foot of freeboard. Freeboard shall be measured from the maximum one hundred (100) year water surface elevation and shall not be used in the calculation of storage or mitigation.

6. Detention Pond Structural Requirements:

- a. Side slopes shall not exceed a slope of four (4) horizontal to one (1) vertical.
- b. Maintenance berms will be required in accordance with the Galveston County Consolidated Drainage District Design Criteria Manual.
- c. Ponds with lengths over fifty (50) feet shall have a concrete pilot channel.
- d. Concrete pilot channels shall have a minimum width of four (4) feet and a minimum thickness of four (4) inches with #3 rebar spaced at twelve (12) inches on center each way. The concrete pilot channels shall be constructed of 5-sack cement concrete with a compressive strength of three thousand (3,000) psi at twenty-eight (28) days. Provide a one (1) inch depression per every one (1) foot of transverse slope, with redwood headers spaced every forty (40) feet.
- e. Single-user ponds may use a GCCDD-approved alternative for concrete pilot channels.
- f. Appropriate covering (grass, slope paving, etc.) shall be established on side slopes and pond bottom, to prevent erosion during periods of maximum water velocity
- g. A concrete gravity spillway, set at the maximum ponding elevation, shall be provided at the detention pond outfall structure.
- h. Wet detention ponds, and ponds with vertical walls, shall provide access for safety and maintenance purposes. Wet detention systems shall have a method in place to minimize stagnation, such as an aeration system.
- i. "Dry" detention ponds shall not be designed with less than two (2) feet of depth.

7. Ownership and Easements:

a. Private Facilities:

- 1) Pumped systems shall not be allowed. Only detention facilities which rely on gravity to discharge storm runoff will be allowed by the City and the GCCDD.
- 2) Responsibility for maintenance of the detention facility must be indicated on the plat.
- 3) All private properties being served shall have drainage access to the pond.
- 4) A private maintenance agreement must be provided when multiple tracts are being served.

b. Public Facilities:

- 1) Facilities will only be accepted for maintenance by the City when such is in the public interest.
- 2) The City will require a maintenance work area twenty (20) feet wide surrounding the extent of the detention area. Public rights-of-way or permanent access easements may be included as a portion of this twenty (20) foot width.
- 3) A dedication of easements or reserves must be provided by the plat.
- 4) Proper dedication of public access to the detention pond must be shown on the plat or by separate instrument. This includes permanent access easements with overlapping public utility easements.

8. Off-Site Detention in the Galveston County Consolidated Drainage District:

- a. It is the desire of the City of Friendswood that regional detention be utilized when available. If new development is within the service area of a publicly owned or operated regional storm water detention

facility, connection to such regional facility shall be as required by the drainage master plan applicable to such facility.

- b. In Galveston County, offsite detention, such as regional or sub-regional detention, may be purchased from the Galveston County Consolidated Drainage District provided:
- 1) The development drains to the Clear Creek watershed or the tributaries of Clear Creek.
 - 2) All lots or tracts must outfall into a conveyance system with adequate capacity, excluding single family residential construction on lots or tracts containing five (5) acres or less.
 - 3) The proposed improvements do not include the subdivision of land.
 - 4) The developed site does not exceed eight (8) acres for single-family residential lots or tracts, five (5) acres for multi-family residential lots or tracts, and five (5) acres for commercial lots or tracts.
 - 5) Regional detention for site development relating to single-family residential construction on lots or tracts containing five (5) acres or less may be purchased based on square feet of impervious cover by completing the Attachment #4, a copy of which is made a part of this manual. All other site development qualifying for the purchase of regional detention must submit a new or revised drainage plan.

9. Detention Requirements Summary:

Lot or Tract Type	Acreage	Off-Site Detention Available	Engineered Drainage Plans	Detention Volume Calculation Method	Rates	Attachment #4* Required	GCCDD Board Approval
SFR	0-5	Yes	Not Required	Purchase Regional Detention Based On: New Impervious Coverage in SF x \$0.25/SF Calculation of Detention Volume Unnecessary	\$0.25 per SF	Yes	Not Required
	5-8	Yes	Required	Engineer Determines the Detention Volume by an Approved Method	\$25,000 per AC-FT	No	Required
	8+	No	Required	Engineer On-Site Detention	NA	No	Required
MFR	0-5	Yes	Required	Engineer Determines the Detention Volume by an Approved Method	\$25,000 per AC-FT	No	Required
	5+	No	Required	Engineer On-Site Detention	NA	No	Required
COM	0-5	Yes	Required	Engineer Determines the Detention Volume by an Approved Method	\$25,000 per AC-FT	No	Required
	5+	No	Required	Engineer On-Site Detention	NA	No	Required

10. Conveyance:

- a. The developer shall provide conveyance to a detention facility without having a detrimental effect on any adjacent properties.
- b. If conveyance is directed through properties not directly owned by the developer, an executed contract or recorded deed between the parties agreeing to the said conveyance must be presented to the City and the appropriate drainage district entity.
- c. This procedure is approved by both the City and the corresponding drainage district entity (GCCDD or HCFD) during preliminary plan review.

1.05 RESERVED

1.06 SUBMITTALS

A. Preliminary Submittals- Submit for Review and Comment:

1. One line drawings are required as part of the platting process. One line drawings shall include:
 - a. Approximate definition of lots and street patterns.
 - b. The approximate drainage areas for each system.
 - c. A definition of the proposed drainage system by single line.
 - d. The proposed pipe diameters.
 - e. Any proposed drainage easements.
 - f. Floodplain and floodway boundaries, if any.

B. Final Design – Submit the following for approval:

1. Copies of any documents which show approval of exceptions to the City Design Criteria.
2. Design calculations for storm line sizes and grades, and for detention facilities, if any.

3. Design calculations for the hydraulic grade line of each line or ditch, and for detention facilities, if any.
 4. Contour map and drainage area map of the project.
 5. Plan and profile sheets showing storm sewer or open ditch design (public facilities only).
 6. Projects located within a floodplain boundary or within a floodplain management area shall:
 - a. Show the floodplain boundary or floodplain area, as appropriate, on the one-line drawing or drainage area map.
 7. Soil boring logs.
 8. All drainage plans shall have a current FEMA flood zone determination statement.
- C. Signature State – Submit the Following for Approval:
1. Review prints.
 2. Original drawings.
 3. Storm water detention maintenance agreement letters.

1.07 QUALITY ASSURANCE

Prepare calculations and construction drawings under the supervision of a Professional Engineer licensed to practice engineering in the State of Texas and trained in the disciplines required by the drawings. The final construction drawings and all design calculations shall be sealed, signed, and dated by the Professional Engineer licensed to practice engineering in the State of Texas responsible for the development of the drawings along with their firm's registration information.

2.0 EXECUTION

2.01 RESEARCH REQUIREMENTS – Reserved

2.02 DESIGN ANALYSIS

- A. All projects shall be tied to National Geodetic Survey (NGS) Datum adjustment which matches the Federal Emergency Management Agency (FEMA) rate maps or the most current NGVD which matches the FEMA rate maps. In the event GPS surveying is used to establish benchmarks, at least two (2) references to benchmarks relating to the FEMA rate maps must be identified. Equations may be used to translate other datum adjustments to the required adjustment.
- B. Plan sets shall include a drainage area map which shall contain all storm sewer drainage calculations.
- C. All drainage systems for curb-and-gutter pavements shall be underground closed conduits; individual residential lot drainage is exempt. Drainage systems for pavements without curb-and-gutter shall be roadside open ditch sections.
- D. Soil boring with logs shall be made along the alignment of all storm sewers having a cross section equal to or greater than seventy-two (72) inches in diameter or equivalent cross section area. Boring should be taken at intervals not to exceed five hundred (500) linear feet, and to a depth not less than three (3) feet below the flow line of the sewer. The required bedding will be determined from the soil boring.
- E. Plan sets shall include the five (5) year Hydraulic Grade Line for storm sewers and roadside ditches on the plan and profile sheets.

SECTION VI

SITE DEVELOPMENT

1.0 GENERAL

- A. Should any portion of this Section conflict with the Subdivision Ordinance or the Zoning Ordinance, the more stringent of the latter two (2) shall govern.
- B. The City Engineer shall have the final interpretation of any provisions in this Design Criteria Manual.
- C. The City Engineer has the right to issue administrative orders or design criteria modifications for just cause related to any provisions or conditions in this Design Criteria Manual.

1.01 CHAPTER INCLUDES

Criteria for the design of site development plans.

1.02 REFERENCES

- A. City of Friendswood Zoning Ordinance.
- B. City of Friendswood Subdivision Ordinance.
- C. City of Friendswood Standard Details and Technical Specifications, latest version. These details can be downloaded from:

www.friendswood.com/publications

- D. Texas Department of Transportation – Traffic Control Plan

1.03 DEFINITIONS

Commission – Planning and Zoning Commission.

1.04 DESIGN REQUIREMENTS

- A. Site Development Requirements:
 - 1. General Requirements:

- a. Site development plans for all site developments shall be approved by the City Engineer prior to construction.
- b. Site developments, not including single family residential, shall include any project that affects public water, wastewater, storm drainage, sidewalks, or paving facilities.
- c. All sidewalks in new developments shall be a minimum of five (5) feet from the back of curb, two (2) feet from the edge of the public rights-of-way and shall not be in any utility easements.
- d. All site developments shall conform to the requirements of these Standards, the latest version of the International Code Series, as amended, and all applicable rules and regulations of the City of Friendswood.
- e. All wastewater, drainage, and paving site development improvements, up to and including the connection to the public system, shall be privately owned, operated, and maintained. All water site development improvements up to but not including the meter and meter vault, shall be privately owned, operated, and maintained.
- f. Restore the City of Friendswood rights-of-way or easements to existing or better condition than that prior to start of work.
- g. Private utilities and service lines shall be placed in an easement on the property being served.
- h. Streets that change direction a minimum of ninety (90) degrees will require a different name.

2. Design Review Requirements for Site Development Plans

- a. All site development plans for proposed developments shall be submitted to the Community Development Department for approval prior to construction. Site development plans shall show all proposed water, wastewater, paving, parking, drainage, street signage, streetlight locations, flood protection facilities, and sidewalks with approved ADA ramps locations, and a traffic control plan.

- b. A traffic impact study shall be required for any development proposal expected to generate traffic volumes that will significantly impact the capacity and/or safety of the street system. All proposed developments generating volumes of five thousand (5,000) trips per day or greater shall abide by this criterion. The trip estimate shall be based on the latest version of the Institute of Transportation Engineers' Trip Generation Manual.
- c. The developer should first schedule a Development Review Committee (DRC) meeting with Community Development Department staff. At this meeting, infrastructure issues and the feasibility of developing the site will be discussed.
- d. The developer shall prepare a site plan for submittal to be reviewed by staff. The developer shall consult with staff until all significant issues surrounding the proposed site plan and development are resolved, prior to proceeding to the Planning and Zoning Commission.
 - 1) The submittal for the site plan requires five (5) copies of the following:
 - a) Cover Sheet
 - b) Site Plan
 - c) Landscaping Plan
 - d) Building Elevation Plan
 - e) Photometric Plan
 - 2) and two (2) copies of:
 - a) Drainage Plan
 - b) Utility Plan
 - c) Grading Plan
 - d) Storm Water Pollution Prevention Plan

- e. The final site plan will be presented to the Planning and Zoning Commission by City Staff for consideration. The Planning and Zoning Commission reviews the final document for completeness and public awareness.
 - f. The final site plan submittal to be provided to Community Development Department staff at least ten (10) days prior to the next regularly scheduled Planning and Zoning Commission meeting.
 - g. Once the site plan is approved, the developer may begin the building permitting process. Approval from the appropriate drainage entity is required prior to the issuance of building permits.
 - h. Three (3) copies of the site development plans shall be submitted to the Building Official for review. The City will typically respond within two (2) to four (4) weeks of the initial submittal.
 - i. When plan changes are requested, two (2) copies of the revised site development plans shall be submitted to the City for review, which will ultimately result in the reissuance of any applicable permit(s).
- 3. Building Slab Elevations – Minimum building slab elevations shall conform to the requirements of the City of Friendswood Flood Damage Prevention Ordinance and latest adopted flood zone maps.
 - 4. Water Service – Water service lines and meters shall be sized in accordance with requirements set out in the Waterline Distribution System Design Requirements.
 - 5. Sanitary Sewer Service – Sanitary sewer service leads are normally installed during construction of the public sanitary sewer. When a sanitary sewer service lead is to be installed for a site development, refer to the Wastewater Collection System Design Requirements. All lots, tracts, or reserves shall be connected directly to a public sanitary sewer by a single lead, except as specifically approved by the City Engineer. The City Department of Public Works shall be contacted for all sanitary sewer connections for commercial projects.
 - 6. Site Drainage Requirements – All commercial, industrial, office, recreational, and multi-family tracts shall have an internal drainage system. The internal drainage system shall collect all site runoff and direct it into a private storm sewer system that shall connect to the public

drainage facilities in the area. Any exceptions require specific approval from the City.

- a. The internal site storm sewer shall be connected to a public storm sewer at a manhole or at an inlet adjoining the site. The site drainage outfall shall be connected to the nearest existing drainage system with adequate capacity to serve the drainage area. Where extension of the existing drainage system is required, all costs for extension shall be the responsibility of the developer.
- b. All internal facilities shall be designed by a Professional Engineer licensed to practice engineering in the State of Texas, and shall be sized to drain the site in accordance with these standards.
- c. Drainage calculations shall be submitted with all site development plans. Additional supporting data may be required by the City.
- d. When the site drains directly into a Galveston County or Harris County facility, and/or into a TxDOT or county rights-of-way, the appropriate governmental entity(s) shall approve the site development connection to the public facilities.

7. Driveways

- a. It is desirable to minimize the number of non-residential driveways on all streets in order to reduce the number of conflict points and facilitate traffic flow. It is recognized, however, that certain existing tracts may not be able to fully comply with the following standards due to limited frontage or other constraints.
- b. When compliance with these criteria is precluded for any reasons, attempts should be made to obtain alternative access where feasible, including joint access driveways, access easements to adjoining properties, or access to intersecting streets.
- c. If it can be demonstrated to the City Engineer that sufficient attempts to secure alternative access have been made, and that such access is still not possible, the City Engineer may accept a Traffic Impact Analysis performed by a Professional Engineer licensed to practice engineering in the State of Texas. If approved, the analysis will be used to allow a deviation to the driveway spacing requirements indicated herein.

- d. Residential driveways shall be a minimum of twelve (12) feet wide and a maximum of twenty-five (25) feet wide at the rights-of-way line, unless otherwise approved by the City Engineer, and should be placed at least twenty-five (25) feet away from the property line at the intersection of two (2) streets and at least five (5) feet from a property line between two (2) properties.
- e. Residential lots must have a minimum of one hundred (100) feet of frontage in order to be eligible for a circular driveway on the lot, and the two (2) driveways shall have at least forty-five (45) feet of separation between them from the inside edges of driveways.
- f. Non-residential driveways shall be a minimum of twenty-five (25) feet wide and a maximum of thirty-five (35) feet wide. Non-residential driveways shall be spaced with a minimum of fifty (50) foot separation.
- g. Non-residential driveways on major thoroughfares/boulevard streets shall be placed no closer than one hundred (125) feet from the ultimate curb line of the intersecting major thoroughfare or boulevard street. Non-residential driveways on collector/ minor streets are to be placed no closer than seventy-five (75) feet from the ultimate curb line of the intersecting major thoroughfare/boulevard street. Non-residential driveways on major thoroughfares/boulevard streets are to be placed no closer than seventy-five (75) feet from the ultimate curb line of the intersecting collector commercial/minor street.
- h. For purposes of determining the separation distance, the back of curb or edge of street shall be used in conjunction with the edge of driveway which is closest and parallel to the street from which the measurement is to be taken.
- i. Non-residential tracts with less than one hundred fifty (150) feet of frontage on a public street shall have no more than one (1) driveway. Non-residential tracts between one hundred (150) feet and three hundred twenty (320) feet of frontage on a public street shall have no more than two (2) driveways. Non-residential tracts between three hundred twenty-one (321) feet and six hundred (600) feet of frontage on a public street shall have no more than three (3) driveways. Non-residential tracts with over six hundred (600) feet of frontage on a public street shall have the number of

driveways specially designated and specifically approved by the City.

- j. Non-residential driveway connections to the public street shall be approved and inspected by the City, TxDOT, county representative, or appropriate entity.
- k. Driveway radii shall not extend beyond the projection of a property line perpendicular to the back of the curb.
- l. Driveways shall be installed according to the latest version of the City of Friendswood Standard Details and Technical Specifications.
- m. Driveways shall be evaluated with respect to location of existing or proposed signage, landscaping, and structures for adequate sight distance.
- n. A note stating, "Access to adjacent property and common driveways may be required" shall be placed on the site plan.
- o. Curb returns for driveways shall be, at a minimum:
 - 1) For residential driveways:
 - a) Five (5) feet on local streets less than twenty-eight (28) feet in width.
 - b) Ten (10) feet on collector streets, major thoroughfares and boulevards, and local streets greater than twenty-eight (28) feet in width.
 - 2) For non-residential driveways:
 - a) Twenty-five (25) feet on local streets less than twenty-eight (28) feet in width
 - b) Thirty-five (35) feet on collector streets, major thoroughfares, boulevards, and local streets greater than twenty-eight (28) feet in width

8. Fire Lanes

- a. Fire lanes shall be required on all multi-family and non-residential tracts if any part of a building is greater than one hundred fifty (150) feet from either a fire lane, private street, or public street rights-of-way.
- b. Fire lanes shall be either twenty (20) feet wide with a twenty-five (25) foot radius or twenty-five (25) feet wide with a twenty (20) foot radius.
- c. Fire lanes shall be constructed using the same pavement structural requirements as a public pavement. Alternate materials may be used with specific approval from the City Engineer.
- d. Fire lanes shall be designed to drain in compliance with the Site Development Requirement.
- e. Fire lane markings shall be provided as specified in the Friendswood Code of Ordinances.
- f. An emergency vehicle turn-around, whether a cul-de-sac of a radius required by the Fire Marshal or a T-head at least one hundred twenty (120) feet in length, shall be required under certain conditions.

9. Controlled Access Gate Requirements

- a. Plans for access control systems shall be submitted to the Fire Marshal's Office and approved prior to construction.
- b. All access control gates shall have emergency means of operation in the event of power loss.
- c. Access control gates shall provide a clear, passable width of at least twenty (20) feet.
- d. A Knox® key switch shall be provided for all controlled access gates. The key switch shall operate all gates.
- e. A Knox® pad lock shall be provided for all non-motorized gates.

- f. The location of the key switch shall be approved by the Fire Marshal's Office.
- g. The owner or homeowners' association shall maintain all parts of the access system and keep them in good working order.
- h. The Fire Marshal's Office and Police Dispatch shall be notified immediately of any damage to the access system that hinders access including but not limited to, damage to the key box, lock, and gates.
- i. Access gates shall be far enough back to provide at least forty (40) feet of stacking space.

10. Storm Water Pollution Prevention Plan

- a. A storm water pollution prevention plan shall be provided for all site development projects.
- b. Filter fabric fence shall be installed at the perimeter of the site before construction begins.
- c. Once construction is complete, the filter fabric fence may be removed; provided a minimum of five (5) feet of hydro-mulch or sod shall be installed at the back of all curbs, or other Best Management Practices, shall be implemented and/or installed.
- d. Refer to the Storm Water Ordinance for additional requirements.

11. Parking Lot Guidelines

A parking lot layout is required to ensure that adequate off-street parking is provided with the construction, alteration, or remodeling of any building.

- a. Concrete pavement thickness shall be a minimum of five (5) inches with eight (8) inches of stabilized subgrade. Reinforcement shall be Grade 60, $f_y = 60,000$ psi, #4 deformed reinforcing bars spaced at sixteen (16) inches center to center both ways and minimum lap lengths of eighteen (18) inches.
- b. Hot Mix Asphalt Concrete pavement thickness shall be a minimum of two (2) inches with eight (8) inches of stabilized crushed

concrete or limestone and six (6) inches of lime-stabilized subgrade.

- c. Off-street parking spaces shall be located on the same lot, tract, parcel, or premises as the use being served, or on other property of the same or less restrictive zoning classification that the owner of the premises being served has a continuing right to use for parking. When the off-street parking spaces are not located on the same lot, tract, parcel, or premises being served, the distance from the center of the parking lot to an entrance to the building, shall not exceed five hundred (500) feet in distance measured along the shortest available pedestrian route with public access.
- d. Any existing building that is enlarged, structurally altered, or remodeled by more than fifty (50) percent as it existed shall be accompanied by off-street parking for the entire building. When the enlargement, structural alteration, or remodel is not increased or changed by more than fifty (50) percent, additional off-street parking shall only be required for the increased or changed floor area.
- e. Existing parking spaces may not be used to satisfy additional off-street parking requirements unless, the existing spaces exceed the number recommended for the building or use for which the existing spaces are associated.
- f. The number of off-street parking spaces required for each building or use shall be determined by reference to the Parking Group Table in Appendix C – Design Criteria Manual. Where several different property uses will share a joint parking area, the parking should be computed based upon the overall development.
- g. The design and dimensions of off-street parking areas shall be in accordance with the following table of minimum dimensions. Minimum stall width shall be nine feet, except for residential and all-day office parking which may utilize stalls eight and one-half (8.5) feet in width, provided that minimum aisle widths are increased by one (1) foot. In addition, the dimensions of up to twenty (20) percent of the total number of off-street parking spaces may be reduced to eight (8) feet in width and sixteen (16) feet in depth to accommodate compact automobiles (such spaces must be so marked). All dimensions below are in feet:

	<i>Angle (degrees)</i>				
	<i>0°</i>	<i>35°</i>	<i>45°</i>	<i>60°</i>	<i>90°</i>
Stall, parallel to aisle	23.0	18.0	12.7	10.4	9.0
Stall, perpendicular to aisle	9.0	16.5	19.0	20.0	18.0
Aisle width, one-way	12.0	12.0	12.0	16.0	24.0
Aisle width, one-way	22.0	22.0	22.0	24.0	24.0
Cross aisle, one-way	11.0	11.0	11.0	11.0	11.0
Cross aisle, two-way	22.0	22.0	22.0	22.0	22.0
Refer to Appendix B – Figure 8 of this Design Criteria Manual for Off-street Parking Diagrams					

- h. Off-street parking spaces shall be clearly marked. Parking spaces abutting an adjoining property line or street rights-of-way shall be provided with wheel guards or bumper guards located such that no part of a normally parked vehicle will extend beyond the property line. When wheel guards are used, they shall be centered two and one-half (2.5) feet from the property line for ninety (90) degree parking, two and one-third (2.3) feet for sixty (60) degree parking, and two (2.0) feet for forty-five (45) degree and thirty (30) degree parking.
- i. The parking layout and design of all off-street parking areas shall be approved by the City Engineer. The City Engineer shall determine that spaces provided are usable, and that the circulation pattern within the area is adequate.
- j. One ADA – compatible space is required for every twenty-five (25) regular spaces (full sized or compact sized), or for any increment thereof.

12. Pipelines

All new Pipelines shall be a minimum depth of ten (10) foot in depth to the top of the pipe in all new or existing road rights-of-way.

13. Utility and Cable Installation

- a. Utility infrastructure shall be mounted on pads at ground level; if within the rights-of-way, utility infrastructure shall not block sidewalks or visibility at intersections.

- b. For future individual utility service, lines which originate in a public road right-of-way and extended to any building or structure shall be installed underground.
- c. On side streets with above-ground utility services which intersect a roadway with underground utility lines, the first pole supporting the above ground service shall be placed on such a side street at least one hundred (100) feet from the center of the roadway with the underground utilities.

2.0 EXECUTION

2.01 RESEARCH REQUIREMENTS

- A. Discuss project concepts outlining proposed features and usage with the City.
- B. Research existing utility and rights-of-way information.
- C. Verify that no restrictions exist that could result in denial of the project concept.

2.02 DESIGN ANALYSIS – Reserved

2.03 DRAWINGS

- A. The site development plan shall include layout sheet(s) providing a photometric layout of the site complete with location of proposed lights, information on light heights, and type of light standard proposed.
- B. The site development plan shall include an overall drainage layout showing:
 - 1. Total area (in acres) of site to be drained.
 - 2. Area (in acres) drained to each inlet.
 - 3. Contours or an adequate number of spot elevations to indicate area drained to each inlet.
 - 4. Top elevation and flowline elevation at each inlet.
 - 5. Gradient and size on each private storm sewer.
 - 6. Computations to support pipe sizes and grades shown [minimum private storm size shall be ten (10) inches].

7. Design velocity for storm sewers shall be three (3) feet per second.
 8. A TxDOT or a county permit shall be required for drainage affecting a state or county owned/maintained facility. Submit permit with site plan.
 9. The drawings shall be prepared and sealed by a Professional Engineer licensed to practice engineering in the State of Texas.
 10. The size and location of any required detention facility shall be indicated on the plans, along with the size and location of the outfall structure.
- C. All site development plans shall be approved by the appropriate drainage entity prior to City approval being granted.
 - D. The site plan shall show all water and sewer service lines with sizes, grades and alignments; and illustrate any proposed ties into the existing public lines.
 - E. The site development plan shall show all parking areas.
 - F. The site development plan shall indicate the types and location of all existing and proposed landscaping. Landscaping shall meet the minimum requirements as set forth in the Zoning Ordinance. If no trees exist, a note to that effect shall be placed on the site development plan. The Qualified Tree List can be found in Appendix D of this Design Criteria manual.
 - G. The site development plan shall show the location, height, and area of all proposed buildings. All setback lines as required by the Zoning Ordinance shall also be shown with a dimension called out on the site plan between the building and the site boundary.
 - H. The land use for all adjacent property shall be shown on the site development plan.
 - I. All parking lot pavements for site development plans shall be engineered to provide for operation by vehicles normally expected to utilize the parking area, and the thickness of paving shall be based upon the soil conditions underlying the parking area. A Professional Engineer licensed to practice engineering in the State of Texas shall certify the design submitted for approval.
 - J. Concrete sidewalks [a minimum of four (4) feet wide and four (4) inches thick with steel reinforcement] shall be required along all street frontages. The design and installation of such sidewalks shall comply with Texas Accessibility

Standards Architectural Barriers requirements and the City of Friendswood Standard Details and Technical Specifications. The location of all proposed and existing sidewalks shall be shown on the site development plan.

- K. Show location of signs, screening walls or fences [indicate height, material, and appurtenances], and dumpsters (with appropriate screening).
- L. If the site is located within the Community Overlay District, a plan note shall be made on the site development plan indicating such; and that the site development will conform to the Zoning Ordinance requirements.
- M. No improvements in or to public rights-of-way shall be made without prior approval from the City Engineer. This includes planting trees in public rights-of-way, within residential and non-residential areas, or in any utility or drainage easement. Only Class 2 and Class 3 trees listed in Appendix D of this Design Criteria Manual may be planted in public rights-of way if such planting is approved by the City Engineer. No trees of any class may be planted in utility or drainage easements.

APPENDIX A

Attachments

ATTACHMENTS

1. Lift Station Start-up Log
2. Design Criteria Modification Form
3. GCCDD Form DR-001

DRAFT

City of Friendswood Lift Station Start-Up Log								
Date:			Site:			Pump Number:		
Address:			Pump Designation:					
Name Plate Data								
Pump Data								
Pump Make:			Size:					
Pump Model:			TDH:					
Serial Number:			Impeller Number or Size					
			Flow in GPM:					
Pump Motor Data								
Make (if applicable):			Phase:					
Serial Number (if applicable):			Name Plate Voltages:					
RPM:			Name Plate Full Load Amps:					
Service Factor:			Pump is wired for:					
Start-Up Trial Data								
Insulation Test			Pre-Start Voltage Test					
L1 to GND	L2 to GND	L3 to GND	L1 - L2	L2 - L3	L3 - L1	L1 - GND	L2 - GND	L3 - GND
M	M	M	V	V	V	V	V	V
			Run Voltage Test			Run Amperage Test		
Phase Rotation			L1 - L2	L2 - L3	L3 - L1	L1	L2	L3
ABC		CBA						
Operator:								

CITY OF FRIENDSWOOD DESIGN CRITERIA MODIFICATION FORM

Modifications to standards identified in the Design Criteria Manual may be permitted by the City of Friendswood's City Engineer. The modification proposal must be submitted by a Professional Engineer licensed by the State of Texas and shall follow generally accepted engineering standards for traffic, sidewalk and other infrastructure as applicable, and such proposal contains the following information and substantiates the findings in Paragraph 4 below. If an appeal to the City of Friendswood City Engineer decision is

This entire form must be completed in its entirety. If form is submitted incomplete, it will be administratively rejected.

requested, the Construction Board of Adjustment (hereinafter referred to as "the City") will review that appeal.

PROJECT NAME:

PROJECT ENGINEER:

SUBMITTAL DATE:

SUBDIVISION NAME:

MODIFICATION LOCATION:

1. Set forth the proposed deviation to the technical standard.

SPECIFIC PROPOSED DEVIATION FROM TECHNICAL STANDARD:

2. Set forth the impact such deviation has on speed differential and street capacity, the likelihood of accidents, the long term maintenance and operation effect, the degree of functionality and efficiency, the technological advancements involved, and other relevant matters.

IMPACT OF DEVIATION:

3. Show a comparison of the technical standard to the proposed deviation with respect to overall safety and quality, speed differential, street capacity, existing and projected accidents, long-term maintenance and operation, degree of functionality, degree of efficiency, technological advancements, and other relevant matters.

COMPARISON OF TECHNICAL STANDARD TO PROPOSED DEVIATION:

4. Describe all mitigating improvements that reduce the negative impact of the proposed deviation on overall safety and quality, speed differential, street capacity, accident occurrences, long-term maintenance and operation, degree of functionality, degree of efficiency and demonstrating the degree to which the proposed deviation detrimentally affects the foregoing. Other relevant factors, including technological advances, should be explained by describing how they will affect the proposed development. Mitigating improvements can include but are not limited to, traffic control devices, pavement improvements, added acceleration or deceleration lanes, or reservoirs, and other on-site improvements.

MITIGATING IMPROVEMENTS THAT REDUCE NEGATIVE IMPACT:

SUMMARY & CONCLUSION/RECOMMENDATION FOR MODIFICATION:

List of Supporting Documentation Attached?

Yes____ **No**____

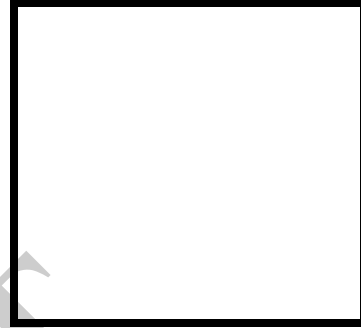
Engineer's Name

Engineering Firm

Address

City, ST, ZC

Telephone



Seal of Professional Engineer

Department of Public Works Use ONLY

Reviewed By:

Date

Modification Request Approved / Denied By:
Copies of Backup Information/Notes Attached

City Engineer

Date

NAME OF APPLICANT: _____
ADDRESS: _____
LEGAL DESCRIPTION: _____
TOTAL ACREAGE: _____
DATE OF PLAT OR RE-PLAT: _____

QUALIFICATIONS FOR PURCHASING REGIONAL DETENTION
PER THE INTERLOCAL AGREEMENT BETWEEN THE CITY OF FRIENDSWOOD AND GCCDD DATED MARCH 7, 2011:

SINGLE FAMILY RESIDENTIAL (SFR) LOTS OF 3.5 ACRES OR LESS QUALIFY
MUST PROVIDE SUPPORTING DOCUMENTATION FOR THE CALCULATION OF IMPERVIOUS COVER

FEE CALCULATIONS BASED ON SQUARE FEET OF IMPERVIOUS COVER:

_____ SF OF IMPERVIOUS COVER X \$0.25 = _____

PLEASE MAKE CHECKS PAYABLE TO THE GCCDD

* IMPERVIOUS COVER AREA SHALL BE DEFINED AS SURFACE COVER WHICH DOES NOT ALLOW THE PASSAGE OF STORM WATER INTO THE UNDERLYING SOIL, AND INCLUDES, BUT IS NOT LIMITED TO CONCRETE, ASPHALT, STABILIZED SOIL, TENNIS COURTS, WATER FEATURES, POOLS, SIDEWALKS, CRUSHED CONCRETE, LIMESTONE, AND ROOFING

APPENDIX B

Figures

Figure

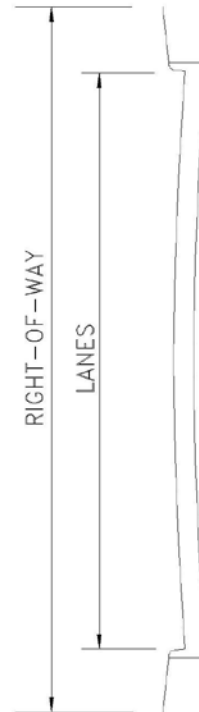
1. Geometric Street Design Standards
2. Divided Roadway Cross Sections – Urban
3. Roadway Tapers For Subdivision Streets
4. Undivided Roadway Cross Sections – Urban
5. Typical Length of Median and Median Opening
6. Median Nose and Left Turn Bay Design
7. Cul-de Sac
8. Driveway spacing and other measurements
9. Off-Street Parking

FIGURE 1

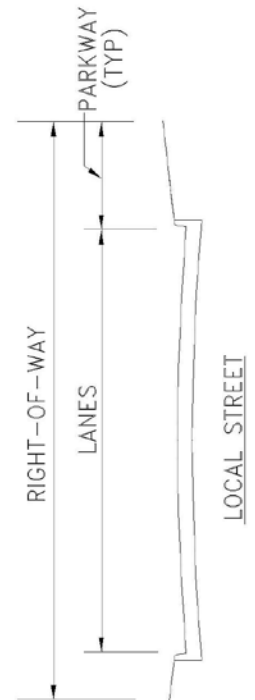
GEOMETRIC STREET DESIGN STANDARDS (MINIMUM STANDARDS)



DIVIDED ROADWAYS
BOULEVARDS – THOROUGHFARES

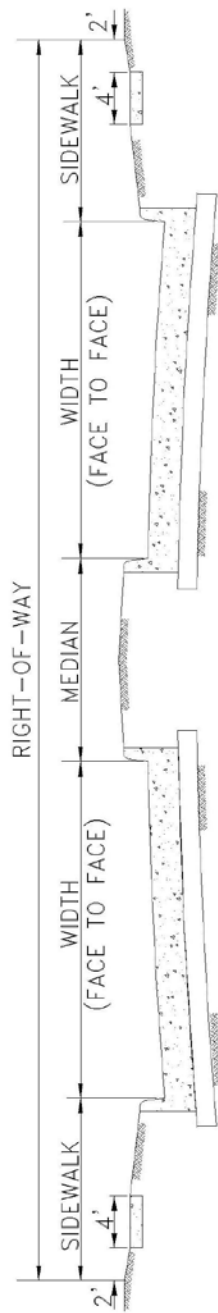


UNDIVIDED ROADWAYS
COMMERCIAL – COLLECTORS



NUMBER TRAFFIC LANES	DIVIDED			UNDIVIDED		
	6	4	4	4	2	2
LANE WIDTH (FT)	12	12	11	11	40	27
R.O.W. WIDTH (FT)	120	100	80	60	60	50
DESIGN SPEED (MPH)	40 – 55	40 – 50	30 – 40	30 – 40	20 – 30	–
MAX. GRADE (%)	6	6	8	8	8	10
STOPPING SIGHT DISTANCE (FT)	325 – 525	325 – 475	200 – 325	200 – 325	125 – 200	–
HORIZONTAL CURVATURE MIN. RADIUS (FT)	2000	1050	850	850	850	300
VERTICAL CLEARANCE (FT)	15.5	15.5	15.5	15.5	15.5	15.5
LATERAL CLEARANCE (FT)	6	6	6	6	6	–
MIN. MEDIAN WIDE (FT)	28	28	–	–	–	–
PARKING PERMITTED	NO	NO	NO	NO	SOME	YES
PARKWAY WIDTH (FT)	10	12	18	18	10	11.5

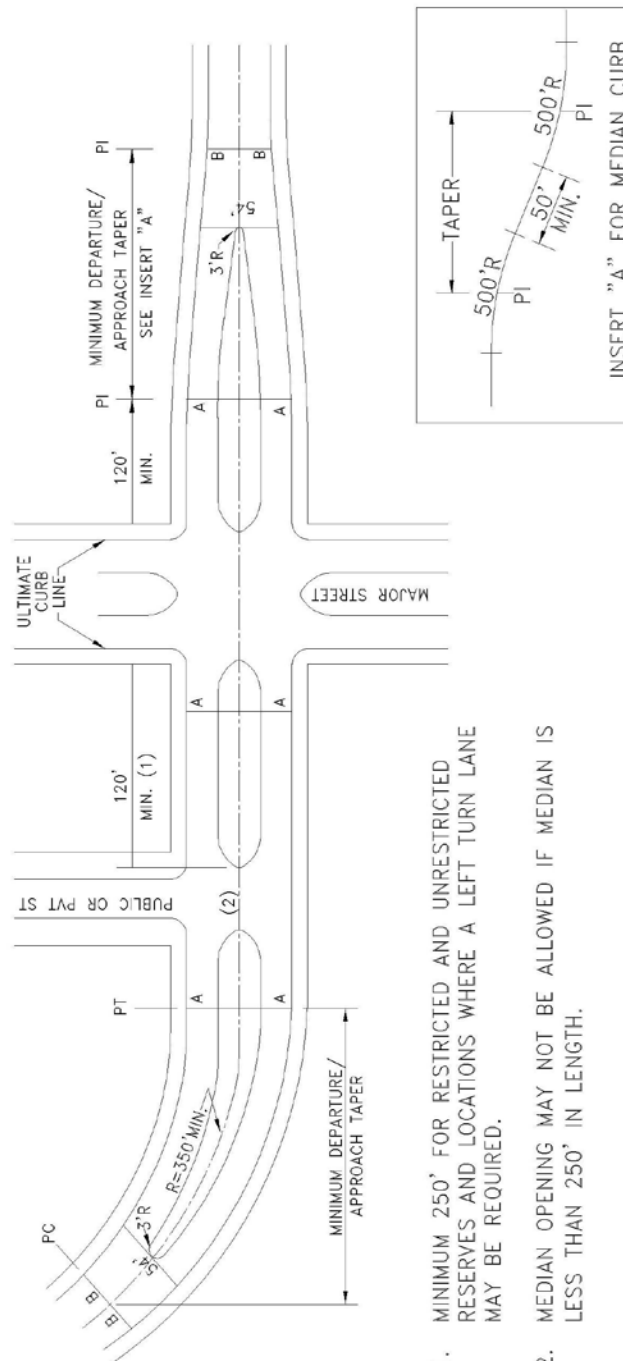
FIGURE 2
DIVIDED ROADWAY CROSS SECTIONS—URBAN



DIVIDED ROADWAY DIMENSIONS (In Feet)			
R.O.W.	80	100	100
WIDTH	24	24	33
MEDIAN	14	28	14
SIDEWALK	9	12	10

NOTE:
THIS DESIGN REPRESENTS THE PRESENCE OF A TYPICAL CURB AND GUTTER,
AND DOES NOT IMPLY OR RECOMMEND A SPECIFIC DRAINAGE DESIGN

FIGURE 3
ROADWAY TAPERS FOR SUBDIVISION STREETS



1. MINIMUM 250' FOR RESTRICTED AND UNRESTRICTED RESERVES AND LOCATIONS WHERE A LEFT TURN LANE MAY BE REQUIRED.
2. MEDIAN OPENING MAY NOT BE ALLOWED IF MEDIAN IS LESS THAN 250' IN LENGTH.

NOTE:

- a. APPROACH AND DEPARTURE TAPER REQUIREMENT:

$L = \frac{WS^2}{60}$ WHERE
L = LENGTH IN FEET
S = SPEED IN M.P.H.

W = LATERAL OFFSET IN FEET

S = 30 M.P.H. MINIMUM DESIGN SPEED FOR SUBDIVISION STREETS

$$W = A - B$$

- b. 350' MINIMUM CENTERLINE RADIUS FOR HORIZONTAL CURVE WITH APPROACH OR DEPARTURE TAPERS

QUICK REFERENCE GUIDE		TAPER L= $\frac{WS^2}{60}$ (FEET)
ROADWAY SECTION	CROSS (FEET)	
A+A	B+B	
80	60	150
80	40	300
80	27	400

FIGURE 4
UNDIVIDED ROADWAY CROSS SECTIONS—URBAN

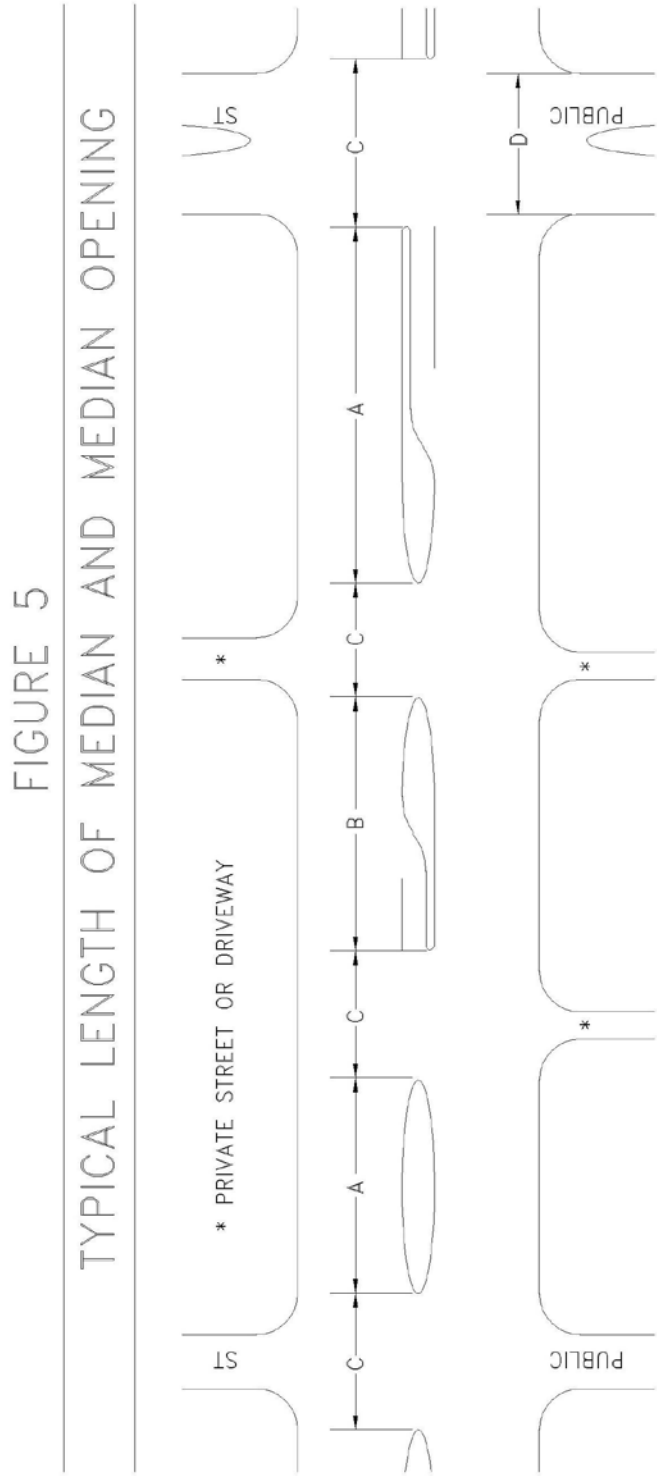


UNDIVIDED ROADWAY DIMENSIONS (In Feet)				
ABUTTING LAND USE	RESIDENTIAL		ALL OTHER	
	MFR-GHD	SFR	MINOR/(2)	COMM.
R.O.W.	50*(1)	60	60	80
WIDTH	27	27	40	44
SIDEWALK	11.5	16.5	10	18

(1) RIGHT-OF-WAY IN MFR-GHD SHALL MEAN THE DRAINAGE AND UTILITY EASEMENT UTILIZED WHEN PRIVATE STREETS ARE CONSTRUCTED.

(2) MINOR/COMM.— ANY PROPERTY USE OTHER THAN SINGLE FAMILY OR A COLLECTOR OR MINOR THOROUGHFARE

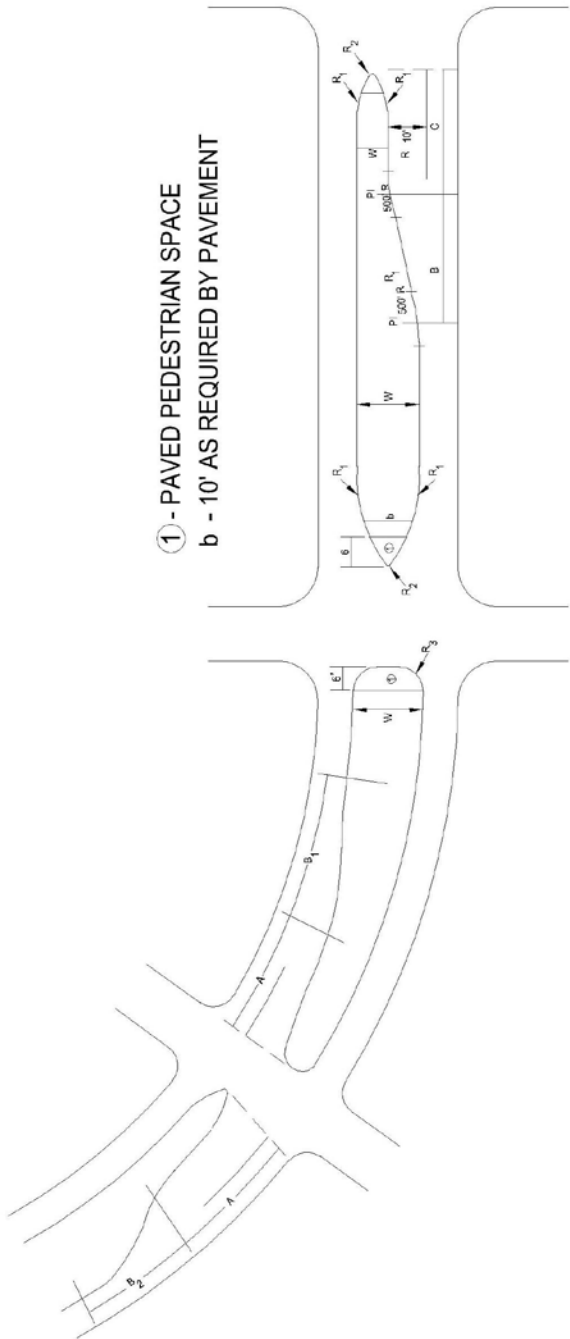
NOTE: THIS DESIGN REPRESENTS THE PRESENCE OF A TYPICAL CURB AND GUTTER, AND DOES NOT IMPLY OR RECOMMEND A SPECIFIC DRAINAGE DESIGN



TYPICAL LENGTH OF MEDIAN OPENING "C" = 50' OR D+10', WHICHEVER IS GREATER.

IF PLANNED DIVIDED STREET IS:	PURPOSE OF MEDIAN INTERRUPTION			
	MAJOR STREET/ THOROUGHFARE (A)	COLLECTOR STREET (A)	LOCAL STREET (A)	PRIVATE STREET OR DRIVEWAY (B)
MAJOR STREET/ THOROUGHFARE	350'	300'	300'	300'
COLLECTOR STREET	300'	250'	250'	250'
LOCAL STREET	250'	250'	250'	200'

FIGURE 6
MEDIAN NOSE AND LEFT TURN BAY DESIGN

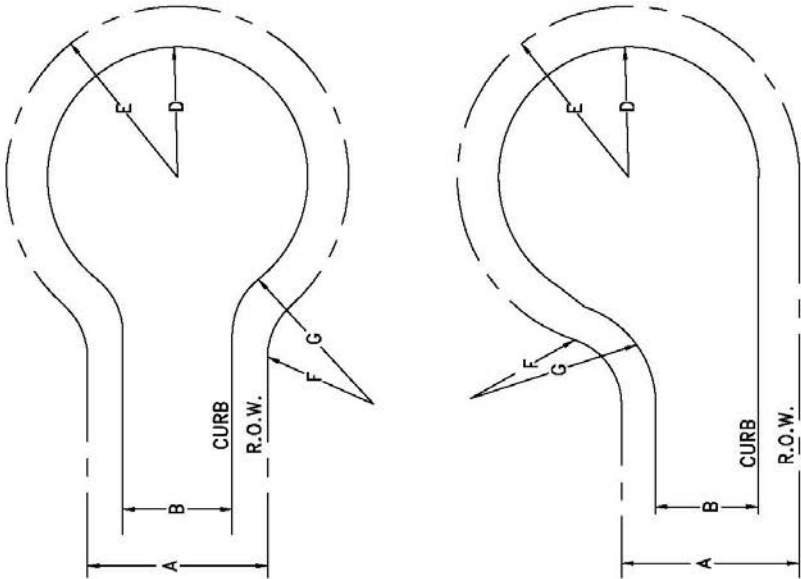


MEDIAN DIMENSIONS				
W	R ₁	R ₂	R ₃	
≤ 8'	NONE	$\frac{W}{2}$	NA	
>8' ≤ 38'	90°	$\frac{W}{5}$	NA	
>38'	NONE	NONE	15°	

NA - NOT APPLICABLE

LEFT TURN BAY DIMENSIONS	
A = 150' MINIMUM AT INTERSECTION OF TWO MAJOR STREETS. = 100' MINIMUM AT ALL OTHER INTERSECTIONS. B = 100' MINIMUM ON STRAIGHT ROADWAY. B ₁ = TAPER LENGTH MAY BE SHORTER IF IT IS ON A HORIZONTAL CURVE TO THE LEFT. B ₂ = TAPER LENGTH MAY BE LONGER IF IT IS ON A HORIZONTAL CURVE TO THE RIGHT. NOTE: DIMENSIONS MAY BE ADJUSTED AS DETERMINED BY TxDOT.	

FIGURE 7
CUL-DE-SAC DESIGN FOR STREET TERMINATION



ABUTTING LAND USE	
SINGLE FAMILY *	ALL OTHER
A ALL WIDTHS	60'
B ALL WIDTHS	ALL WIDTHS
D 50'	55'
E 60'	65'
F 25'	25'
G 35'	35'

ALL DIMENSIONS MEASURED IN FEET TO FACE OF CURB.

* NOT OPENING ONTO A MAJOR THOROUGHFARE

MAXIMUM CUL-DE-SAC LENGTH SHALL BE 750 FEET.

FIGURE 8
 DRIVEWAY SPACING AND OTHER MEASUREMENTS

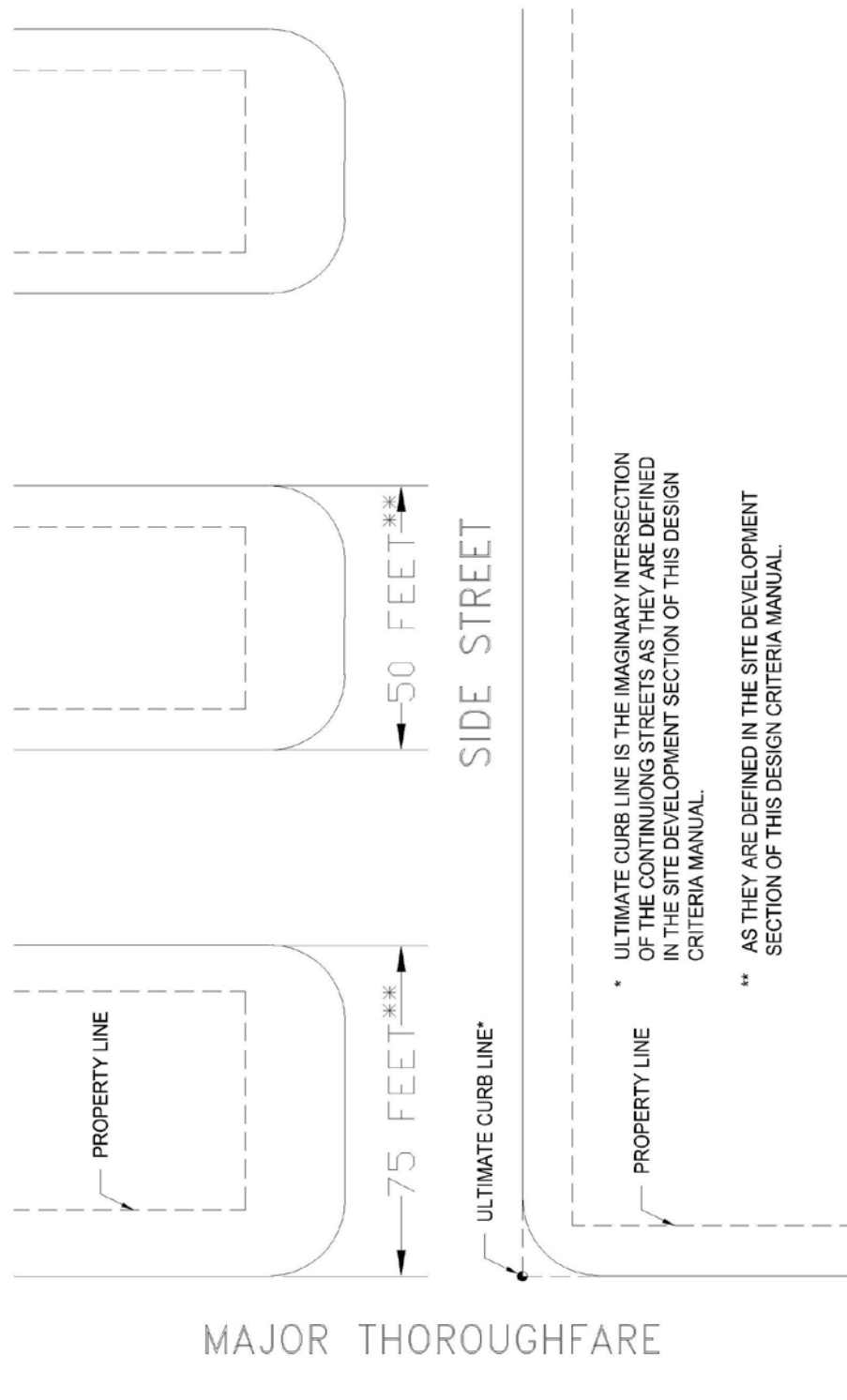
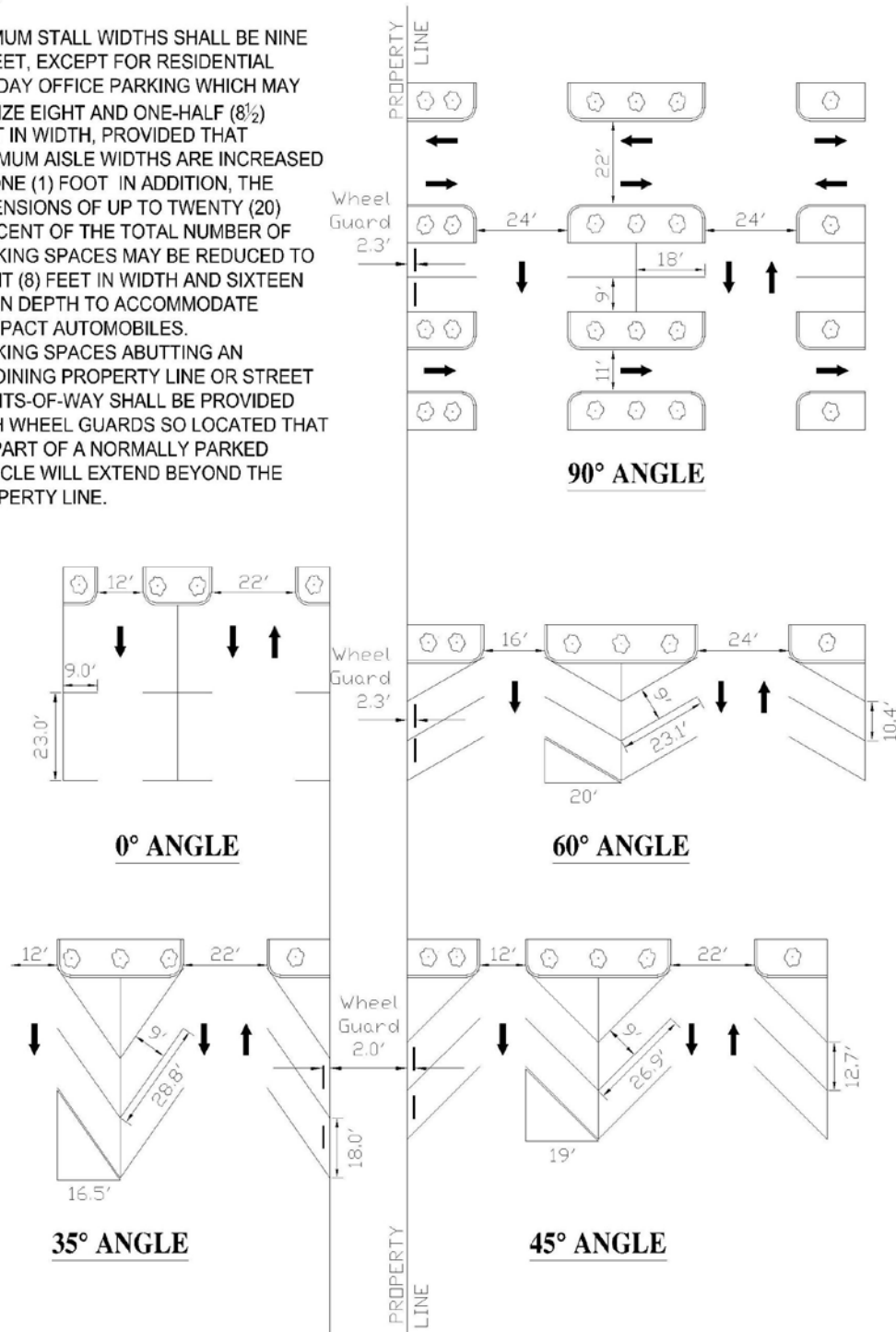


FIGURE 9 OFFSTREET PARKING

NOTES:

1. MINIMUM STALL WIDTHS SHALL BE NINE (9) FEET, EXCEPT FOR RESIDENTIAL ALL-DAY OFFICE PARKING WHICH MAY UTILIZE EIGHT AND ONE-HALF (8½) FEET IN WIDTH, PROVIDED THAT MINIMUM AISLE WIDTHS ARE INCREASED BY ONE (1) FOOT. IN ADDITION, THE DIMENSIONS OF UP TO TWENTY (20) PERCENT OF THE TOTAL NUMBER OF PARKING SPACES MAY BE REDUCED TO EIGHT (8) FEET IN WIDTH AND SIXTEEN (16) IN DEPTH TO ACCOMMODATE COMPACT AUTOMOBILES.
2. PARKING SPACES ABUTTING AN ADJOINING PROPERTY LINE OR STREET RIGHTS-OF-WAY SHALL BE PROVIDED WITH WHEEL GUARDS SO LOCATED THAT NO PART OF A NORMALLY PARKED VEHICLE WILL EXTEND BEYOND THE PROPERTY LINE.



APPENDIX C

Parking Group Table

Parking Use Category	Parking Spaces*
Accommodation	
<i>Accommodations:</i>	1.25 spaces per sleeping room or unit, plus the following meeting per banquet space: - less than 10 sq. ft. per sleeping room = none; - 10 to 20 sq. ft. per sleeping room = 30 spaces per 1,000 sq. ft. GFA; - 21 to 50 sq. ft. per sleeping room and over 50 sq. ft. per sleeping room = 20 spaces per 1,000 sq. ft. GFA.
<i>Accommodations with food:</i>	1.25 spaces per sleeping room or unit, plus 10 spaces per 1000 sq. ft. GFA restaurant lounge, plus the following for meeting/banquet space: - less than 10 sq. ft. per sleeping room = none; - 10 to 20 sq. ft. per sleeping room = 30 spaces per 1,000 sq. ft. GFA; - 21 to 50 sq. ft. per sleeping room and over 50 sq. ft. per sleeping room = 20 spaces per 1,000 sq. ft. GFA.
Adult Establishment	1 space for every 4 seats or 1 space for every 50 sq. ft. of customer service area, whichever is greater.
Agricultural, Forestry, Fishing, and Hunting Uses	2 per site plus 1 per 1,000 sq. ft. enclosed floor area.
Amusement and Recreation Industries	
<i>Arcade:</i>	1 space per 200 sq. ft. GFA.
<i>Driving/Archery/Shooting Range:</i>	1 space per 200 sq. ft. GFA of indoor facilities plus 1 space per tee or target.
<i>Fairground, Exhibition, Carnival:</i>	1 space per 500 sq. ft. of outdoor site area plus 1 space per 4 fixed spectator seats.
<i>Fitness and Recreational Sports:</i>	7 spaces per 1,000 sq. ft. GFA.
<i>Golf Course:</i>	1 space per 150 sq. ft. GFA of indoor facilities plus 5 spaces per green.
<i>Miniature Golf:</i>	1 space per 200 sq. ft. GFA of indoor facilities plus 1.5 spaces per hole.
<i>Rodeo, Circus, Auto/Motorcycle Racing:</i>	1 space per 3 spectator seats.
<i>Skateboarding, Water Slide:</i>	1 space per 200 sq. ft. GFA of indoor facilities plus 1 space per 2 persons design capacity of outdoor facilities.
<i>Sports fields, Swimming Pools, Private Parks, and Playgrounds:</i>	1 space per 100 sq. ft. GFA of indoor facilities plus 1 space per 4 persons design capacity of outdoor facilities, including both participants and spectators, as applicable.
<i>Tennis Courts and Other Sports Courts:</i>	2 spaces per court.
Arts, Entertainment, and Recreations	
<i>Arena:</i>	- .33 spaces per seat.
<i>Baseball Stadium:</i>	- .35 spaces per seat.
<i>Football Stadium:</i>	- .31 spaces per seat.

Parking Use Category	Parking Spaces*
Arts, Entertainment, and Recreations (cont.):	
<i>Theater (live performances):</i>	- .40 spaces per seat.
<i>All Other Public Assembly:</i>	- .25 spaces per person in permitted capacity.
<i>Convention Centers, Meeting/Banquet Facilities, not within a hotel or in a hotel, but exceeding 100 sq. ft. per sleeping room:</i>	- up to 25,000 sq. ft. = 30 spaces per 1,000 sq. ft. GFA; plus - 25,000 to 50,000 sq. ft. = 20 spaces per 1,000 sq. ft. GFA; plus - 50,000 and 100,000 sq. ft. = 10 spaces per 1,000 sq. ft. GFA; plus - 100,000 or more sq. ft. = 6 spaces per 1,000 sq. ft. GFA.
Automotive Repair	3 spaces per service bay (service bays not included as parking).
Broadcast and Telecommunication	1 space for each 300 sq. ft. GFA.
Car Wash	2 per wash bay plus 3 stacking spaces per bay.
Civic, Social, and Fraternal Associations:	1 space for each 300 sq. ft. GFA.
Educational Services (based on maximum design capacity)	
<i>Daycare Center or Pre-Elementary:</i>	.3 spaces per person licensed capacity enrollment.
<i>Elementary, Middle Schools:</i>	Higher of .2 spaces per seat in auditorium/gym or .25 spaces per student.
<i>Secondary Schools:</i>	Higher of .3 spaces per seat in auditorium/gym or .3 spaces per student.
<i>College or University:</i>	To be established based on a study of parking needs prepared specifically for the subject institution.
<i>Other Classroom based:</i>	6 spaces per 1,000 sq. ft. GFA;
<i>Other Not Classroom based:</i>	10 spaces per 1,000 sq. ft. GFA.
Finance and Insurance	
<i>General Business Offices:</i>	- up to 25,000 sq. ft. = 3.8 spaces per 1,000 sq. ft. GFA; plus - 25,000 to 100,000 sq. ft. = 3.4 spaces per 1,000 sq. ft. GFA; plus - 100,000 or more sq. ft. = 2.8 spaces per 1,000 sq. ft. GFA.
<i>Consumer Service Offices:</i>	4.6 spaces per 1,000 sq. ft. GFA.
<i>Data Processing, Telemarketing, Operations:</i>	6 spaces per 1,000 sq. ft. GFA.
Food Service	
<i>Restaurant:</i>	10 spaces per 1,000 sq. ft. GFA;
<i>Restaurant bar area:</i>	15 spaces per 1,000 sq. ft. GFA;
<i>Fast Food:</i>	8 spaces per 1,000 sq. ft. GFA;
<i>Take Out and Delivery Only:</i>	3 spaces per 1,000 sq. ft. GFA;
<i>Night Clubs:</i>	15 spaces per 1,000 sq. ft. GFA.
Gas Station	1 space for each side of a gasoline pump unit.
Health Care and Social Assistance	
<i>Medical Offices (not on hospital campus):</i>	4.5 spaces per 1,000 sq. ft. GFA.
<i>Medical Offices (on hospital campus):</i>	4 spaces per 1,000 sq. ft. GFA.

Parking Use Category	Parking Spaces*
Hospitals, Nursing, and Residential Care Facilities	
<i>Hospital/Medical Center:</i>	To be established based on a study of parking needs prepared specifically for the subject institution.
<i>Elderly Housing:</i>	1 space per dwelling unit.
<i>Congregate Care/Assisted Living:</i>	.35 spaces per dwelling unit.
<i>Group, Convalescent, and Nursing Home:</i>	.5 spaces per bed.
Information Services	3 spaces for each 5 employees on largest shift.; or 1 space per 600 sq. ft. GFA.
<i>Cinemas:</i>	- Single screen - 2 to 5 screens - 5 to 10 screens - Over 10 screens
Mining, Utilities, Construction, Manufacturing, Transportation, and Warehousing	3 spaces for each 5 employees on largest shift.; or 1 space per 600 sq. ft. GFA.
<i>Industrial/Manufacturing:</i>	1.85 spaces per 1,000 sq. ft. GFA plus required parking spaces for office, sales, or similar use where those uses exceed 10% GFA.
Mobile Home	2.5 spaces per trailer unit.
Non-Store Retailers	1 space for each 2,000 sq. ft. GFA.
Other Services	1 space for each 250 sq. ft. GFA.
Professional, Scientific, and Technical Services; Management of Companies and Enterprises; Administration/Support Services	
<i>General Business Offices:</i>	- up to 25,000 sq. ft. = 3.8 spaces per 1,000 sq. ft. GFA; plus - 25,000 to 100,000 sq. ft. = 3.4 spaces per 1,000 sq. ft. GFA; plus - 100,000 or more sq. ft. = 2.8 spaces per 1,000 sq. ft. GFA.
Public Administration	1 space for each 300 sq. ft. GFA.
Real Estate, Rental, and Leasing	1 space for each 300 sq. ft. GFA.
Religious Organizations	.4 spaces per seat.
Residential Uses	
<i>Single Family Dwellings</i>	- less than 3,000 sq. ft. = 2 spaces per dwelling unit; - more than 3,000 sq. ft. = 3 spaces per dwelling unit
<i>Multi-Family Dwellings Rental:</i>	- 1 space per dwelling unit for efficiency units; - 1.5 spaces per dwelling unit for 1st bedroom in units with 1 or more bedrooms, plus .25 spaces for each additional bedroom.
<i>Multi-Family Dwellings Owned:</i>	- 1.0 spaces per dwelling unit for efficiency units; - 1.75 spaces per dwelling unit for the 1st bedroom in units with 1 or more bedrooms, plus .25 spaces for each additional bedroom.
<i>Rental in University District</i>	1 space per dwelling unit for efficiency and 1 bedroom units; plus .5 spaces for each additional bedroom.

Parking Use Category	Parking Spaces*
Retail Trade	4 spaces per 1,000 sq. ft. GFA.
Shopping Centers	- 6 spaces per 1,000 sq. ft. GFA up to 200,000 sq. ft.; - 5.5 spaces per 1,000 sq. ft. GFA over 200,000 sq. ft.
Transit and Ground Passenger Transportation; Scenic & Sightseeing	1 space per 100 sq. ft. GFA.
Truck Transportation; Warehousing & Storage	1 space for each 1,000 sq. ft. non-office floor area, plus 1 space for each 300 sq. ft. office area.
Vehicle Dealers	1 space for each 5,000 sq. ft. of lot area.
Wholesale Trade	1 space per 2,000 sq. ft. gross floor storage per sales area.

**Staff may approve a 5% deviation from the recommended parking requirements, unless an alternative plan is approved by the Planning and Zoning Commission.*

DRAFT

APPENDIX D

Qualified Tree List

<u>Common name</u>	<u>Botanical name</u>	<u>Class</u>	<u>N/I</u>	<u>Site</u>	<u>Light</u>	<u>Size</u>	<u>Foilage</u>
Bald Cypress	Taxodium distichum	1	N	2, 3	2	1	D
Bur Oak	Quercus macrocarpa	1	N	2	1	1	D
Cedar Elm	Ulmus crassifolia	1	N	2	1	2	D
Drummond Red Maple	Acer rubrum var. drummondii	1	N	2	1	2	D
Eastern Redbud	Cercis canadensis	1	N	2	2	2	D
Live Oak	Quercus virginiana	1	N	2	1	1	SE
Overcup Oak	Quercus lyrata	1	N	2, 3	1	1	D
Pecan	Carya illinoensis	1	N	2	1	1	D
Possumhaw Holly	Ilex decidua	1	N	2	1, 2	3	D
Shumard Red Oak	Quercus shumardii	1	N	2	1	1	D
Southern Magnolia	Magnolia grandiflora	1	N	2	1	1	E
Swamp Chestnut Oak	Quercus michauxii	1	N	2, 3	1	1	D
Sweet-Bay Magnolia	Magnolia virginiana	1	N	2	2	2	E
Wax Myrtle	Myrica cerifera	1	N	2, 3	1	3	E
American Elm	Ulmus americana	2	N	2	1	1	D
American Sycamore	Platanus occidentalis	2	N	2	1	1	D
Anacua/Sandpaper Tree	Ehretia anacua	2	N	2	1	2	E
Arrow-wood Viburnum	Viburnum dentatum	2	N	2	2	3	D
Black Hickory	Carya texana	2	N	2	1, 2	2	D
Black Walnut	Juglans nigra	2	N	2	1, 2	1	D
Blackgum	Nyssa sylvatica	2	N	2, 3	1, 2	3	D
Callery Pear/Braford	Pyrus calleryana	2	I	2	1	3	D
Carolina buckthorn	Rhamnus caroliniana	2	N	2	1, 2	3	D
Chalk Maple	Acer leucoderme	2	N	2	2	2	D
Cherry Laurel	Prunus caroliniana	2	N	2	2	2	E
Chinese Elm	Ulmus parvifolia	2	I	2	1	2	D
Chinquapin Oak	Quercus muhlenbergii	2	N	2	1	1	D
Common Crapemyrtle	Lagerstroemia indica	2	I	2	1	3	D
Common Fig	Ficus carica	2	I	2	1	3	D
Common Persimmon	Diospyros virginiana	2	N	2	1	2	D
Eastern Red Cedar	Juniperus virginiana	2	N	2	1, 2	2	E
Eve's Necklace	Sophora affinis	2	N	1	1	3	D
Green Ash	Fraxinus pennsylvanica	2	N	2, 3	1, 2	1	D
Huisache	Acacia farnesiana	2	N	1	1	3	D
Loblolly Pine	Pinus taeda	2	N	2	1	1	E
Mexican Plum	Prunus mexicana	2	N	1	1	3	D
Nuttall Oak	Quercus nuttallii	2	N	2, 3	1	1	D
Ornamental Holly	Ilex spp.	2	I	2	1, 2	3	E
Paloverde	Parkinsonia aculeata	2	N	1	1	2	D

<u>Common name</u>	<u>Botanical name</u>	<u>Class</u>	<u>N/I</u>	<u>Site</u>	<u>Light</u>	<u>Size</u>	<u>Foliage</u>
Parsley Hawthorn	Crataegus marshallii	2	N	2	2	3	D
Post Oak	Quercus stellata	2	N	2	2	1	D
Red Bay	Persea borbonia	2	N	2	2	2	E
River Birch	Betula nigra	2	N	2, 3	2	2	D
Rough-leaf Dogwood	Cornus drummondii	2	N	1, 2	3	3	D
Rusty Blackhaw Viburnum	Viburnum rufidulum	2	N	2	2	3	D
Sassafras	Sassafras albidum	2	N	2	2	2	D
Scarlet (Red) Buckeye	Aesculus pavia	2	N	2	2	3	D
Shagbark Hickory	Carya ovata	2	N	2	1	1	D
Slash Pine	Pinus elliottii	2	I	2	1	1	E
Snowbell	Styrax americana	2	N	2	1, 2	3	D
Southern Red Oak	Quercus falcata var. pagoda	2	N	2	1	1	D
Sweetgum	Liquidambar styraciflua	2	N	2	1	1	D
Texas Mountain-Laurel	Sophora secundiflora	2	N	1	1	3	E
Texas Persimmon	Diospyros virginiana(male)	2	N	1	1	3	D
Texas Pistache	Pistacia texana	2	N	1	1	3	D
Texas Redbud	Cercis canadensis texensis	2	N	1, 2	2	3	D
Water Hickory	Carya aquatica	2	N	2, 3	1	2	D
Water Oak	Quercus nigra	2	N	2, 3	1	1	D
Western Soapberry	Sapindus drummondii	2	N	2	1	2	D
White Ash	Fraxinus americana	2	N	2	1	1	D
White Oak	Quercus alba	2	N	2	1	1	D
Willow Oak	Quercus phellos	2	N	2, 3	1	1	D
Winged Elm	Ulmus alata	2	N	2	1	2	D
Woollybucket Bumelia	Bumelia lanuginosa	2	N	2	2	2	D
Wright Acacia	Acacia wrightii	2	N	1	1	3	D
Yaupon Holly	Ilex vomitoria	2	N	2	1, 2	3	E
American Elderberry	Sambucus canadensis	3	N	2	2	3	D
American Holly	Ilex opaca	3	N	2	2	2	E
American Hornbeam	Carpinus caroliniana	3	N	2	2	2	D
Black Locust	Robinia pseudoacacia	3	N	2, 3	1	2	D
Black Willow	Salix nigra	3	N	3	1	2	D
Box-Elder Maple	Acer negundo	3	N	2	2	2	D
Camphor-Tree	Cinnamomum camphora	3	I	2	1	2	E
Catalpa	Catalpa bignonioides	3	N	2	1	2	D
Common Pear	Pyrus communis	3	N	2	1	2	D
Eastern Cottonwood	Populus deltoides (male)	3	N	2	1	1	D
Flowering Crabapple	Malus spp.	3	I	2	1	3	D
Hercules-Club Prickly-Ash	Zanthoxylum clava-herculis	3	N	1	1	3	D
Honey-Locust	Gleditsia triacanthos	3	N	2, 3	1	2	D
Japanese Yew	Podocarpus macrophyllus	3	I	2	1	2	E
Japanese Maple	Acer palmatum	3	I	2	2	3	D
Loquat	Eriobotrya japonica	3	I	2	2	3	E
Mesquite	Prosopis glandulosa	3	N	1	1	2	D

<u>Common name</u>	<u>Botanical name</u>	<u>Class</u>	<u>N/I</u>	<u>Site</u>	<u>Light</u>	<u>Size</u>	<u>Foliage</u>
Mexican Buckeye	Ungnadia speciosa	3	N	1	1	3	D
Red Mulberry	Morus rubra	3	N	2	1	2	D
Sugar Hackberry	Celtis laevigata	3	N	2	1, 2	2	D
Vitex	Vitex agnus-castus	3	I	1	1	3	D
Water Tupelo	Nyssa aquatica	3	N	3	2	1	D
Weeping Willow	Salix babylonica	3	I	3	1	2	D
Arborvitae	Thuja spp.	4	I				
Arizona Ash	Fraxinus velutina	4	I				
Berlandier Ash	Fraxinus berlandieriana	4	I				
Chinaberry	Melia azedarach	4	I				
Chinese Pistache	Pistacia chinensis	4	I	2	1	2	D
Chinese Tallow	Sapium sebiferum	4	I				
Eucalyptus	Eucalyptus spp.	4	1	1, 2	1	3	E
Golden-Raintree	Koelreuteria paniculata	4	I	2	1	2	D
Japanese Black Pine	Pinus thunbergi	4	I	2	1	2	E
Mimosa(Silktree)	Albizia julibrissin	4	I				
Mulberry	Morus alba	4	I	2	1	2	D
Siberian Elm	Ulmus pumila	4	I				
Silver Maple	Acer saccharinum	4	I				
Tulip-Tree	Liriodendron tulipifera	4	I	2	1	1	D

Trees are divided into four classes. Class 1 and 2 trees are considered the most valuable in enhancing the environment and are the most likely to prosper in the Friendswood area. Therefore, only Class 1 and 2 trees shall be approved as new plantings for a) city parks and property, and parking lots and; b) for streets or other public right-of-ways, respectively, unless otherwise approved by the City Engineer on the advice of an Urban Forester. Species that are classified as shade trees will reach a height and size that will conflict with overhead powerlines, permanent structures, or the canopy will exceed the limits of a confined space. Species that are classified as small trees will not provide the protection or aesthetic impact of a large shade tree, yet they are suitable for planting beneath powerlines and are good alternatives for areas of limited space.

Class 1: For the most part this class is for trees that are native, will do relatively well in the Friendswood area, have few diseases or pest problems, are easy to find in local nurseries, and with few exceptions (redbud, possumhaw, and waxmyrtle) are larger in size.

Class 2: This class is for trees that are mostly native, will still do well in the Friendswood area, have little disease or pest problems, sometimes not quite as easy to find in nurseries, are more varied in size, and in many cases are more suitable for wildlife. These trees tend to have larger and messier fruit and/or are thornier than trees in Class 1. Some of these trees are also more prone to some decay at maturity and might not do as well in urbanized areas.

Class 3: This class starts to pick up more introduced species, the trees might or might not do as well in the Friendswood area, require a little more maintenance and care, the natives

might be harder to find in a nursery while the introduced species may be more readily available and in some cases these trees are more prone to decay, disease and pest problems.

Class 4: this class is exclusively introduced species. They may or may not do well in Friendswood. If they do grow well they have the potential to become invasive species and cause problems for local ecosystems and are more prone to decay, disease and pest problems. **NOT RECOMMENDED FOR PLANTINGS.**

Classifications:

- N – Native
- I – Introduced

Site:

- 1 – Xerophytic (requires little water)
- 2 – Mesic (requires moderate water with good drainage)
- 3 – Aquatic (tolerates poor drainage once established 3 years)

Light:

- 1 – Full Sun (requires a minimum of 6 hours of direct sunlight)
- 2 – Partial Sun (requires a minimum of 3 to 6 hours of direct sunlight)
- 3 – Shade (requires less than 3 hours of direct sunlight)

NOTE: Lower rating number on this scale is the minimum, but can use the next higher rating (i.e. a rating of 2 can also use the rating of 1, a rating of 3, can also use the ratings of 1 and 2)

Size:

- 1 – 60 feet and greater ultimate height (large shade tree)
- 2 – 30 to 60 feet in ultimate height (medium tree)
- 3 – 30 feet and less in ultimate height (small tree)

Foliage:

- D – Deciduous (sheds leaves annually) If placed on the south and west walls will reduce indoor temperatures in summer by shading the roof and walls. In winter, these trees allow sunlight through to help heat the building.
- E – Evergreen (having green leaves/needles throughout the year) can create a wind break if placed on the northwest side of a building.
- SE – Semi evergreen

For example, the code for Live Oak is 1/N/2/1/1, which indicates that the Live Oak is a Class 1 species that is native to Texas, requires moderate water with good drainage, demands or tolerates full sun, and will exceed 60 feet in ultimate height. As a shade tree, the Live Oak will provide protection and has aesthetic impact but the tree is not suitable for planting beneath powerlines or within confined spaces, or in streets or other public rights-of-way.

APPENDIX E

Downtown District Amenities

Streetscape furnishings, as required by City of Friendswood Code of Ordinances, Appendix C – Zoning Ordinance for the Downtown District, are important functional elements and amenities. They should be of high quality, designed for outdoor use, and require minimal maintenance. All provided amenities shall be permanently maintained by the property owner, including paved walkways.

SEATING

Seating should be durable and comfortable. Sharp edges and poorly designed or fabricated furniture should be avoided. Metal is the required material. The seating design should complement other furnishings. All seating should be secured permanently to paved surfaces for safety and to avoid vandalism. The bench below is the preferred model; however, other benches of similar size and features may be approved by the Planning and Zoning Commission.



Manufacturer: Webcoat Products
Product: Metal benches
Model: B5WBCLASSIC
Size: 5'
Color/finish: Black finish
Aluminum frame w/contoured backs

TREE WELLS

Tree wells are an attractive way to protect trees planted in paved areas. Appropriate tree grates and tree wells should be similar to the following:



TREE GRATES

Manufacture: Neenah Foundry Company
Product: Tree grate
Model: ASTM A-48, Metropolitan Series



TREE WELLS

LIGHT POLES

Lighting plays an important part in the character, function, and security of a streetscape. It should be consistent with other streetscape elements and integrate the historic nature of the Downtown District. Light poles shall be the “Bishop’s Crook” style. The light pole below is the preferred model; however, other light poles of similar size and features may be approved by the Planning and Zoning Commission.

	Manufacturer:	Hadco
	Product:	Aluminum Pole w/Teardrop Fixture
	Color/finish:	Black powder coat
		Lighting must be metal halide or LED with full cutoff or semi cutoff fixtures that emits 7,000 to 8,000 lumen, or the equivalent thereof, and 5,000 to 6,000K (Kelvin – color temperature).

Lamp height maximum shall be 12’. Lamp height minimum shall be 10’. Lamp shall be positioned towards the rights-of-way to illuminate the public walkway.

Lamp height is the actual lamp height above ground measured at the bottom of the lamp fixture, where the globe or bulb begins.

TRASH RECEPTACLES

Trash receptacles should be easily accessible for pedestrians and trash collection. They must be placed to be unobtrusive yet effective and their design should relate to other site furnishings. Trash receptacles should be firmly attached to paving to avoid vandalism. They should include covered tops and sealed bottoms to keep contents dry and out of sight at all times. Appropriate trash receptacles should be similar to the following:

	Manufacturer:	Victor Stanley, Inc.
	Product:	Trash receptacle
	Model:	Steelsites RB series
	Color/finish:	Black finish TGIC polyester powder coat

PAVERS

Brick pavers must be used to construct the required brick-paved sidewalk in accordance with the specifications below. The paver color and pattern below is the preferred design; however, other pavers of similar colors and patterns may be approved by the Planning and Zoning Commission.

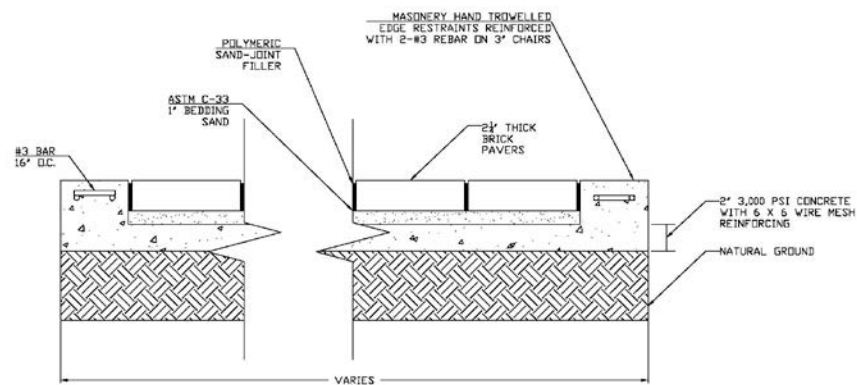
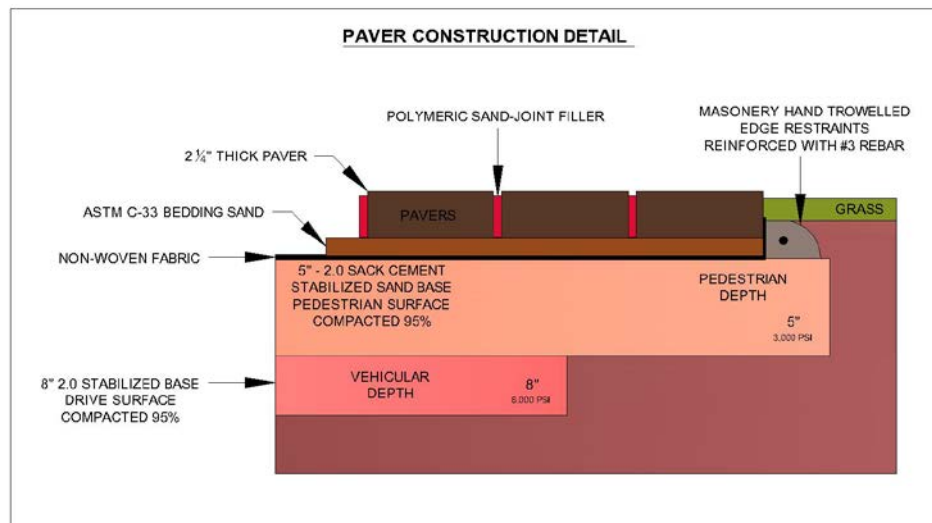
	Manufacturer:	Pine Hall Brick Company, Inc.
	Product:	Pavers
	Model:	Pathway Series, Full Range
	Size:	4" W x 8" L x 2 ¼" thick
	Color:	Red
	Pattern:	Stretcher Bond

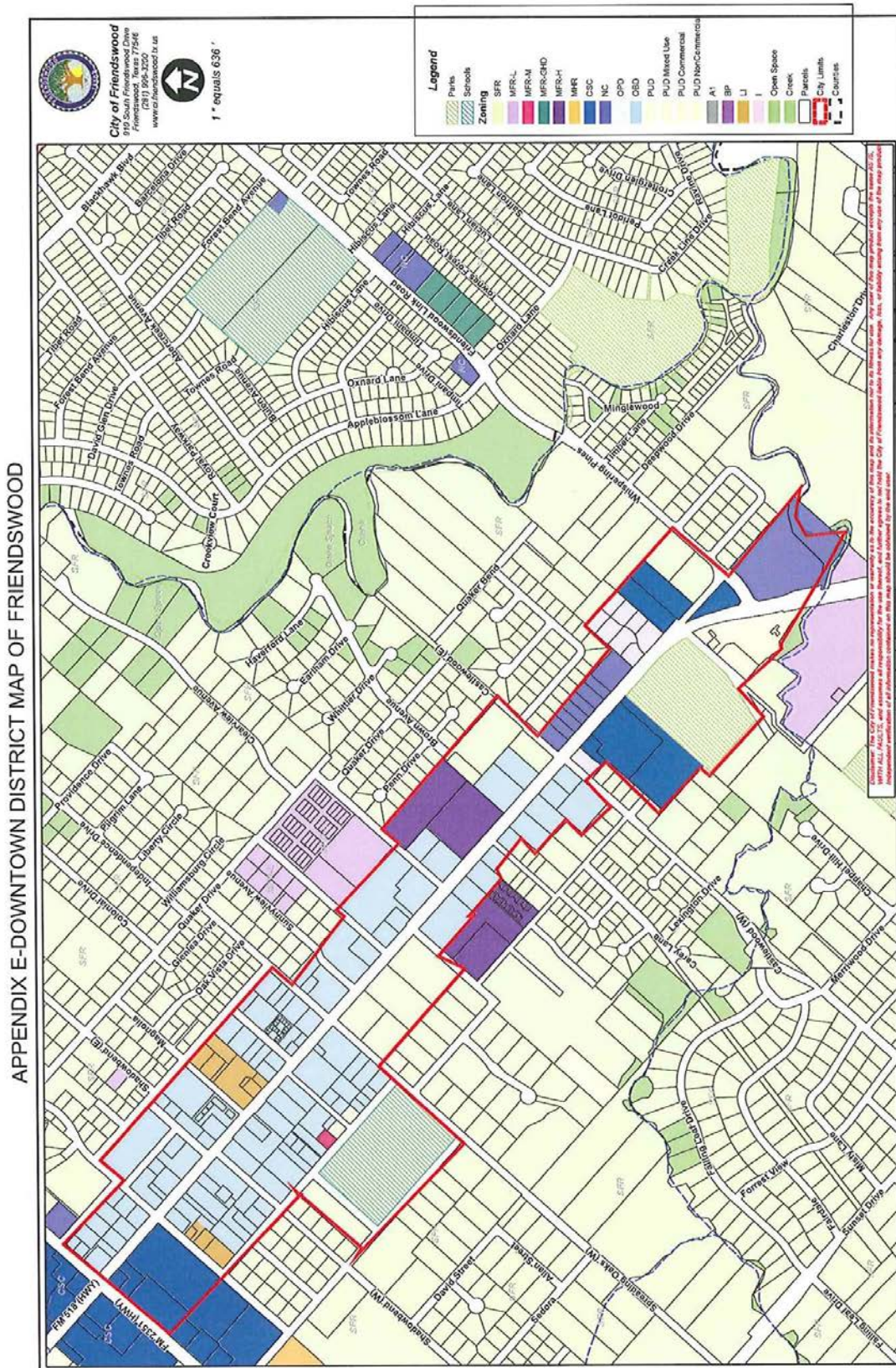
Brick pavers must be set on a sand base with a concrete border as stated below and shown on the attached construction detail drawing. No concrete or stamped concrete is allowed for the sidewalk surface.

Paver installation specs:

- 5" of 2.0 sack cement stabilized sand base
- Non-woven fabric weed block
- 1" of ASTM C-33 bedding sand
- 2 ¼" thick brick unit paver
- Polymeric joint sand
- Masonry hand troweled edge restraints reinforced with #3 rebar

If the pavers are a part of a drive surface for vehicular traffic, an 8" 2.0 stabilized base drive surface, compacted 95% must be installed below the 5" of 2.0 sack cement stabilized sand base.





APPENDIX F

Culverts and Driveways Policy

The purpose of this policy is to establish guidelines, procedures, and standard practices regarding installation, maintenance, and repair of culverts and driveways in new and old subdivisions with open ditches.

I. REPLACEMENT OF DRIVEWAY/CULVERTS DUE TO REPAIRS

- A. If a failure occurs on an existing paved driveway located within the City rights-of-way due to a defect in the existing public infrastructure (i.e., leaking or broken water or sanitary sewer line, failure in storm sewer, culvert failure, etc.) the City will remove the damaged pavement, repair or replace the damaged infrastructure, and replace the pavement up to the rights-of-way line at no cost to the property owner.
- B. If a failure occurs on an existing paved driveway located within the City rights-of-way due to age, wear, or subsidence, and the public infrastructure is found to be in good condition, the property owner shall be responsible for the removal and replacement of the driveway, such replacement being accomplished according to the Ordinances, Design Criteria, Standard Details, and Technical Specifications of the City. In addition, the property owner shall be responsible for any damages that may occur to existing public infrastructure, including the culverts, during the construction process. The property owner shall obtain a building permit from the City for the driveway replacement and shall call in for inspections as needed.
- C. If the driveway to be replaced is on an open ditch street, the culverts may be replaced with the same size as existing with no drainage calculations required, unless:
 - i. They are smaller than the 18" minimum requirements, or
 - ii. The whole drainage ditch is being enclosed (see paragraph III).
- D. When new culverts are installed and concrete paving is being replaced, construction joints shall be installed as shown in Detail A.

II. PROPOSED DRIVEWAY CONSTRUCTION/CULVERT INSTALLATION

- A. When a property owner chooses to make improvements to an existing driveway, the property owner is responsible for removing and replacing the culverts as well as the existing paving.

- B. When a property owner chooses to construct a new driveway, the property owner shall install the proper driveway culverts and new pavement.
- C. All work shall be completed in accordance with the City of Friendswood Technical Specifications and Standard Details, latest edition.
- D. When new culverts are installed and concrete paving is being installed, construction joints shall be installed as shown in Detail A.

III. PROPOSED CULVERT INSTALLATION FOR THE PURPOSE OF ENCLOSING OPEN DITCHES FRONTING RESIDENTIAL PROPERTY.

A. Development Permit:

- i. An approved City of Friendswood Development Permit shall be required prior to installation of residential storm sewer (unless the storm sewer is being installed as part of a new residential building, in which case it shall fall underneath the building permit). Development permits shall only be valid for 1 year.
- ii. A plan drawing shall be submitted with the Development Permit Application. The plan shall be drawn to a 1" = 20' scale.
- iii. Pipe diameters, pipe flow lines, inlet flow lines, and inlet rim elevations shall be shown on the drawings.
- iv. All residential storm sewer projects shall extend from property line to property line.
- v. A Traffic Control Plan shall be provided if any of the proposed work involves obstruction of traffic or lane closures of City streets.
- vi. All residential storm sewers shall be made of Reinforced Concrete Pipe (RCP) Class III, with a minimum 18" diameter, and shall be designed for the purpose intended.
- vii. Alternate sizes and styles may be used as long as they meter the same square inch area of the required pipe size, and is approved by the City Engineer.

B. Installation:

- i. Storm sewer inlets shall be located no farther than 15 feet from the property line.
- ii. Storm sewer inlets shall be no farther than 30 feet from center to center.

- iii. Only Type “A” Inlet (Detail B) or Type “S” Inlet (Detail C) shall be used.
- iv. Inlet and junction box size and design shall be approved by the City Engineer.
- v. High points shall be located halfway between inlets with mild swales (see Detail D).
- vi. Elevations on inlet rims shall be a minimum of 3 inches lower than the surrounding high points (see Detail D).
- vii. All storm sewer projects are subject to inspections by City of Friendswood personnel before they are covered up. Such inspections may require changes or corrections to all or part of the culvert installations during any phase of the work. All inspections shall be called into the Building Division at (281) 996-3201 a minimum of 24 hours prior to inspections.
- viii. Contractor shall have a means to determine flows on site (i.e., laser level, level, etc.).
- ix. All storm sewers shall receive a final inspection and approval by City of Friendswood personnel upon completion. Any deficiencies noted shall be completed within 30 days of such notice.
- x. The City of Friendswood reserves the right to adjust or remove all or part of the storm sewer at any time for any reason.
- xi. All work shall be completed in accordance with the latest revisions of this Design Criteria Manual, City of Friendswood Technical Specifications, and City of Friendswood Standard Detail; which can be found online at:

www.ci.friendswood.tx.us.com/publications

IV. ACKNOWLEDGEMENT

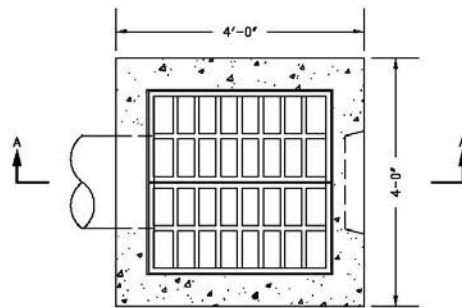
By signing the permit application, the applicant acknowledges they have received and fully understand the requirements pertaining to the installation of residential storm sewers.



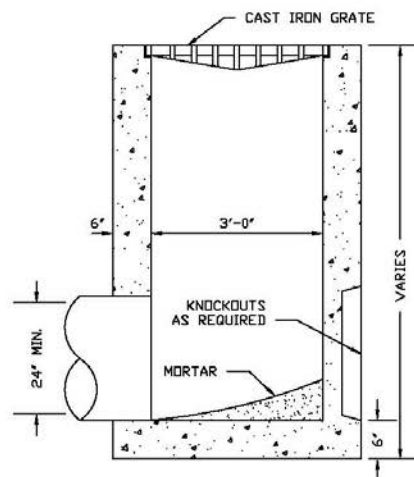
1. EXPANSION JOINT ON CONCRETE STREETS SHALL BE NOMINAL REDWOOD OR ASPHALTIC EXPANSION JOINT MATERIAL WITH 1' PULL-OF STRIP TO BE FILLED WITH APPROVED JOINT SEALANT.
2. 1½" LIP (CONCRETE STREETS ONLY) SHALL NO BE REQUIRED ON STREETS WITH 4' X 12" MOUNTABLE CURB.
3. CONCRETE PAVEMENT HEADERS SHALL BE BUILT IN ACCORDANCE WITH CITY OF FRIENDSWOOD PAVING DETAILS.
4. CONNECTION TO EXISTING ASPHALT STREETS SHALL BE MADE BY BLOCKING NEW CONCRETE WITH EDGE OF PAVEMENT. A 8" DEEP BY 12" WIDE BEAM SHALL BE PLACED ALONG THE EDGE OF THE ASPHALT PAVEMENT. NO EXPANSION JOINT MATERIAL REQUIRED BETWEEN EXISTING ASPHALT STREET AND NEW CONCRETE DRIVEWAY.
5. DAMAGE TO EXISTING STREETS, WHETHER ASPHALT OR CONCRETE, SHALL BE REPAIRED AT CONTRACTORS EXPENSE.
6. ALL CONCRETE SHALL BE CLASS "A", 3,000 PSI AT TWENTY-EIGHT DAYS.
7. USE MATERIAL AND DIMENSION AS SPECIFIED IN STORM SEWER DETAILS FOR TRENCH WIDTHS AND BACKFILL.
8. NO MORE THAN ONE (1) DRIVEWAY ON LOTS WITH LESS THAN 120' OF FRONTAGE.
9. 24" X ¾" DOWELS SHALL BE EMBEDDED A MINIMUM OF 12" INTO EXISTING CONCRETE ROADWAY. DOWELS TO BE INSTALLED AT 12' O.C.

DEPARTMENT OF PUBLIC WORKS

DRAWING: B.S. #11



PLAN



SECTION A-A

TYPE "A" INLET

NOTES:

1. USE #4 REBAR IN 12" D.C.E.W.
2. CONCRETE SHALL BE CLASS "A" WITH A TWENTY-EIGHT DAY COMPRESSIVE STRENGTH OF 4,000 PSI.
3. GRATES SHALL BE CAST IRON.



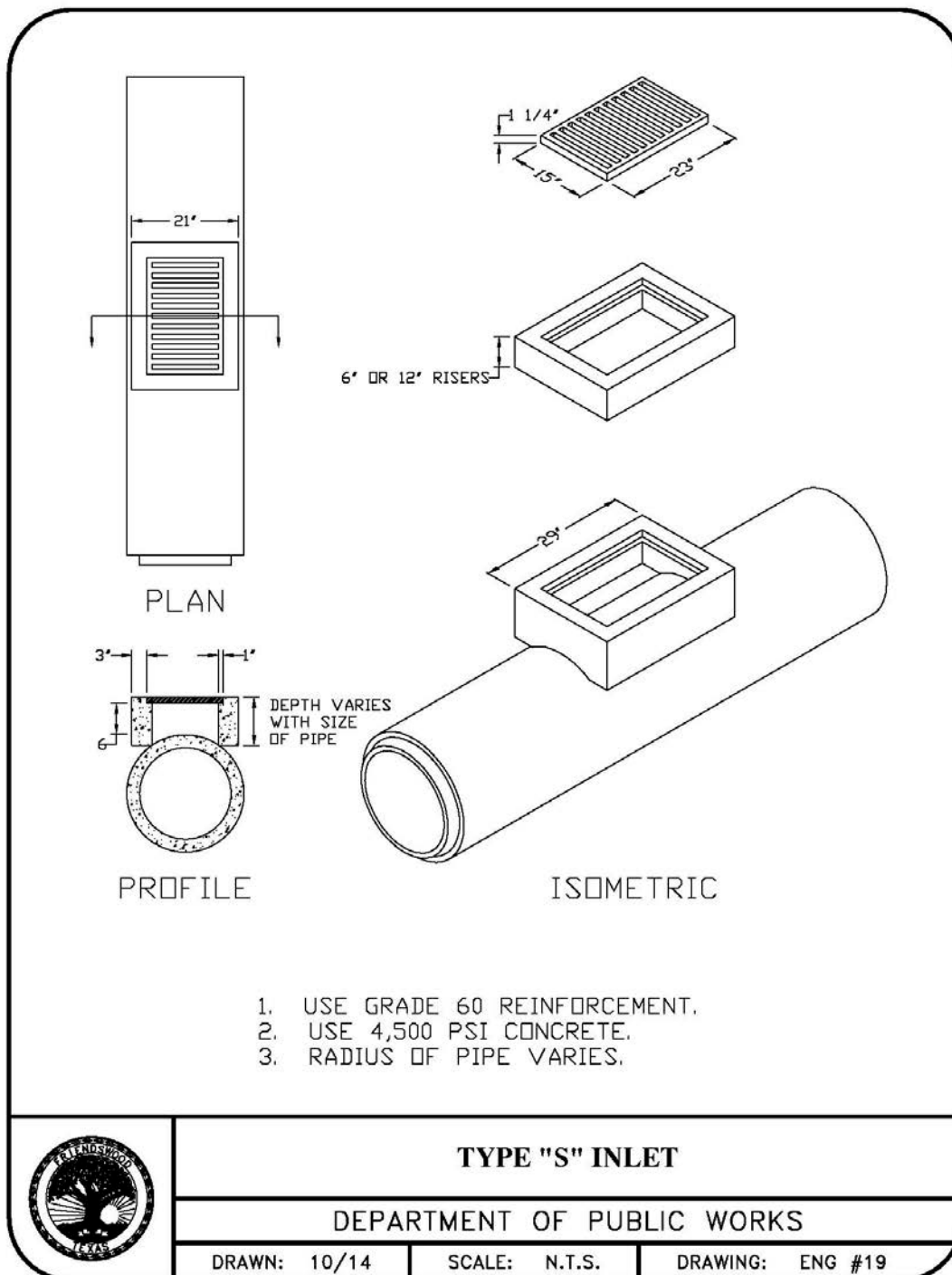
TYPE "A" INLET

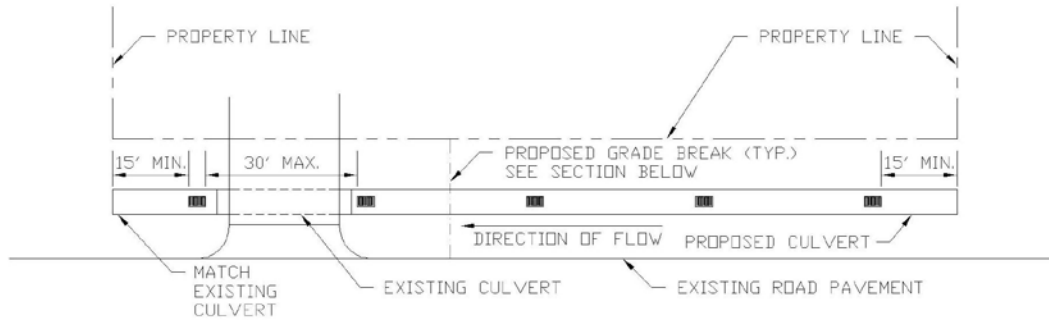
DEPARTMENT OF PUBLIC WORKS

DRAWN: 08/10

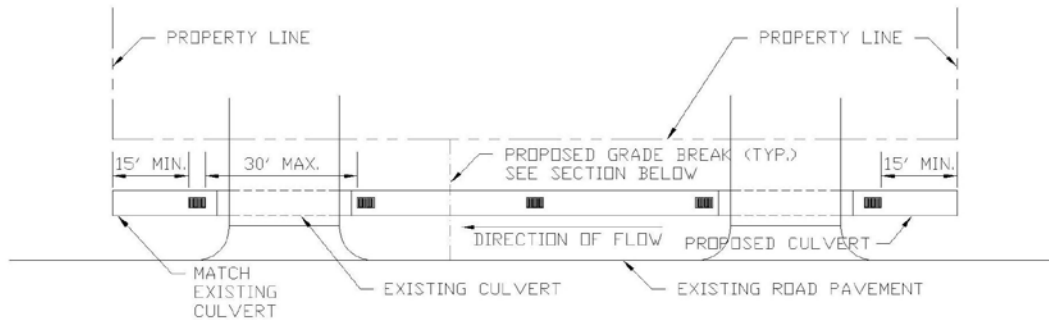
SCALE: N.T.S.

DRAWING: B.S. #14

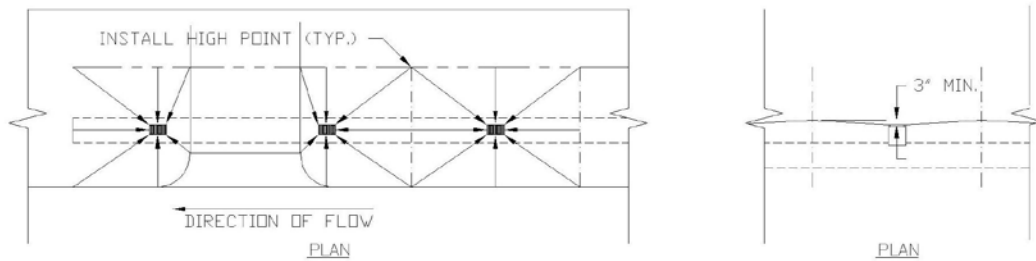




PLAN VIEW FOR SINGLE DRIVEWAY



PLAN VIEW FOR DOUBLE DRIVEWAY



DRAINAGE GRADING



**REQUIREMENTS FOR FILLING IN ROADSIDE
DITCHES IN RESIDENTIAL AREAS**

DEPARTMENT OF PUBLIC WORKS

DRAWN: 10/16

SCALE: N.T.S.

DRAWING: ENG #21

APPENDIX G

Traffic Control Sign Policy

TABLE OF CONTENTS

Attachments List	2
Purpose	3
Scope.....	3
Terms	4
Procedures.....	5
Traffic Concern Request Flow Chart.....	6
Specific Neighborhood Traffic Issues	7
No Parking/Parking Zone Implementation Requests.....	7
No Parking/Parking Zone Removal Requests.....	8
Commercial Truck Cut Through Traffic Mitigation Requests.....	9
Pedestrian Facility Requests	10
School Zone Safety Requests.....	11
Speed Control Requests	12
Intersection Control Requests (Multi-Way Stops, Traffic Signals, and Roundabouts)	13
“Children at Play” and “Deaf Child Area” Sign Requests	14
Other Advisory or Advanced Warning Sign Requests	14
Other Public Safety and Traffic Issue Requests	14

ATTACHMENTS:

A. No Parking and Parking Zones	15
B. Commercial Truck Cut-Through	18
C. Pedestrian Facilities	20
I. Pedestrian Safety	20
II. Pedestrian Crosswalks	21
III. Pedestrian Signals.....	23
D. School Traffic Safety	25
I. Around Schools	25
II. Around School Buses	26
E. Speed Limits	30
F. Intersection Controls.....	32
I. STOP signs	33
II. YIELD signs.....	34
III. Traffic Signal Installation.....	34
G. Children at Play Signs	36
H. Speed Humps, Bumps, and Lumps.....	37

PURPOSE

This policy establishes consistent procedures for addressing traffic-related concerns that may occasionally arise along roadways within or nearby residential areas in the city. Traffic concerns specifically addressed in this policy include the following:

- No Parking/Parking Zone Requests
- Cut Through Traffic Mitigation Requests
- Pedestrian Treatment Requests
- School Zone Safety Requests
- Speed Control Requests
- Intersection Control Requests (Multi-way Stops, Traffic Signals, and Roundabouts)
- “Children at Play” Sign Requests
- Other Advisory or Advanced Warning Sign Requests
- Other Public Safety and Traffic Issue Requests

Other traffic concerns not specifically addressed in this policy may be presented to staff for review by any citizen, Homeowners Association (HOA) business, or group. The Engineering staff will work with those parties to review their situation and formulate an appropriate response as necessary.

In accordance with the City of Friendswood Code of Ordinances Chapter 82 – Traffic and Vehicles and further stated in Ordinance 300, the Traffic Engineer or their designee, will be responsible for all traffic investigations in the City of Friendswood.

SCOPE

The City of Friendswood is committed to improving the quality of life within its City. When a request is made to review a traffic concern, the City’s direct efforts are to work and coordinate with the requesting party in understanding and addressing concerns in a defined area. The Engineering Division of the Department of Public Works (hereafter called “Engineering”) will inform the affected residents of any significant changes. This policy is applicable only to non-state routes.

The adoption of this policy is not intended and should not be construed to affect or waive the City’s immunity from damages under the Texas Tort Claims Act (CPRC Chapter 101) or any other law or ordinance. This policy does not require the City to install, remove, or modify any traffic control device, sign, signal, or warning device if the City has, in the absence of this policy, the discretion under State law to install, remove, or modify the traffic control device, sign, signal, or warning device. All investigations for traffic concerns and signage shall be investigated and warranted in compliance as outlined in the Texas Manual on Uniform Traffic Control Devices (TMUTCD), latest edition.

TERMS

City Traffic Director – The Duties of the City Traffic Director will be encompassed by the City Engineer. The City Manager will retain the final approval/disapproval authority over all decisions of the City Traffic Director.

Engineering Judgment – The evaluation of available pertinent information, and application of appropriate principles, provisions, and practices as contained in the TMUTCD (see below) and other sources, for the purpose of deciding upon the applicability, design, operation, or installation of a traffic control device. Engineering judgment shall be exercised by an engineer, licensed to practice engineering in the State of Texas, or by an individual working under the supervision of an engineer, through the application of procedures and criteria established by the engineer. Documentation of engineering judgement is not required.

HOA – Homeowners Association approved, recognized, and incorporated by law.

Ordinance 300 – The City of Friendswood Ordinance 300 grants the power to the City Traffic Director the authority to determine installation and proper timing and maintenance of traffic control devices, to conduct engineering analyses of traffic accidents to devise remedial measures, to conduct engineering investigations of traffic conditions, to plan the operation of traffic on the streets and highways of the City of Friendswood, and to cooperate with other officials in the development of ways and means to improve traffic conditions, and to carry out the additional powers and duties imposed by the ordinances of this City.

ROW – Right(s)-of-way, the area between property lines given the legal right by usage or grant, for traffic or pedestrian travel.

TMUTCD – Texas Manual on Uniform Traffic Control Devices. The TMUTCD is the authoritative manual on installation, implementation, and maintenance of all types of traffic control devices, both permanent and temporary, for the State of Texas.

Traffic Committee – The Traffic Committee is composed of employees of the City of Friendswood representing the Police Department, the Fire Marshal's Office, Department of Public Works Administration, and Public Works Engineering Division.

Traffic Study – A traffic study is the procedures and other investigations as described in the TMUTCD to determine if a warrant is necessary for a traffic concern.

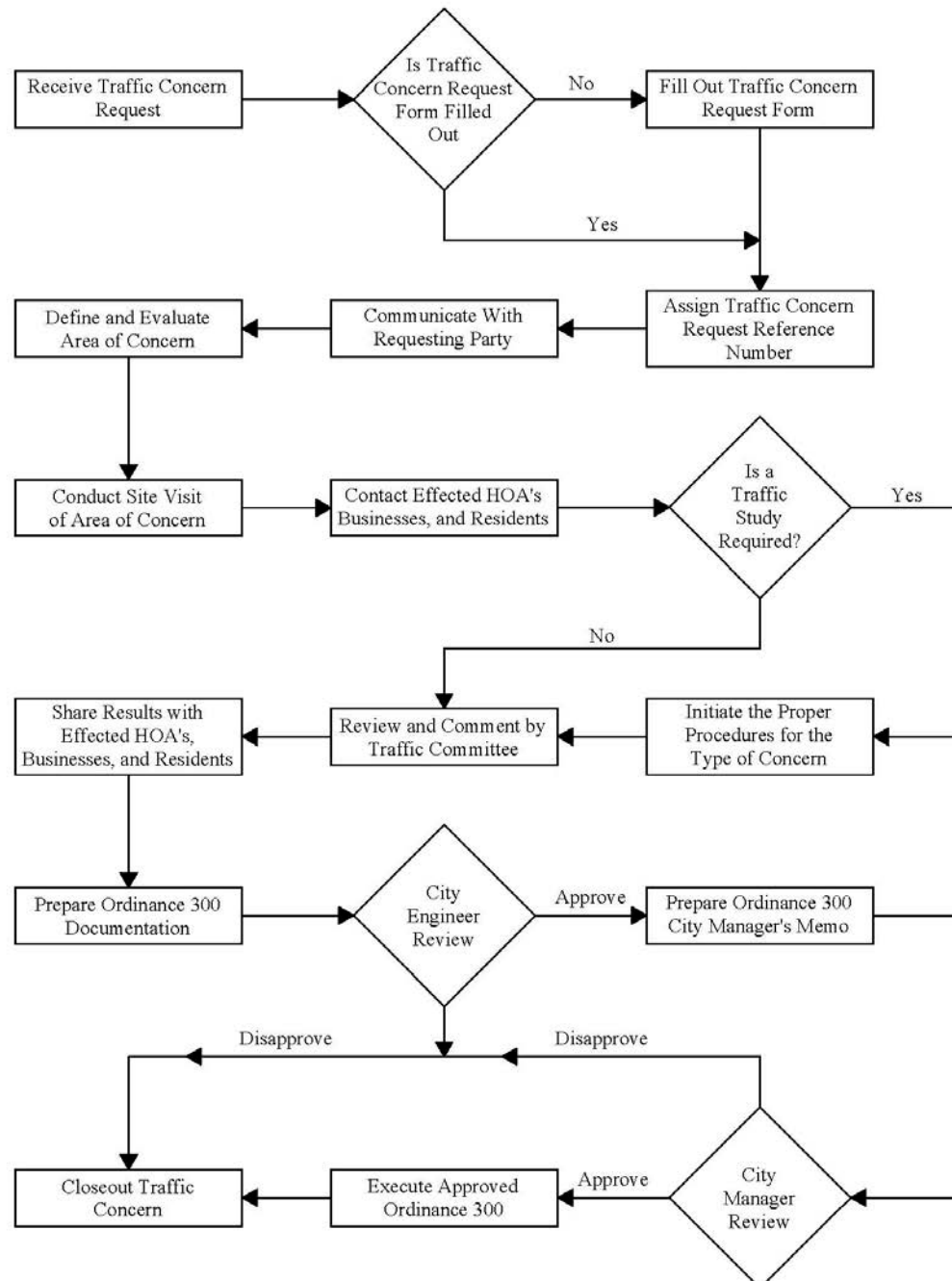
Warrant – a warrant describes the threshold condition based upon average or normal conditions that, if found to be satisfied as part of an engineering study, shall result in analysis of other traffic conditions or factors to determine whether a traffic control device or improvement is justified. Warrants are not a substitute for engineering judgement. The fact that a warrant for a particular traffic control devices is met is not conclusive justification for the installation of the device.

PROCEDURES

1. Residents, homeowners associations, or similar type groups may make a written request to Engineering requesting that a traffic concern be addressed. Traffic Concern request forms may be obtained from the City of Friendswood Engineering or downloaded at www.friendswood.com/publications.
2. The requesting party's issue will be entered in the Public Works Traffic database to search for similar requests in the subject area.
3. Staff will communicate with the requesting party to fully understand their request and thoroughly define the area of concern.
4. Engineering will identify the area of concern and define the area affected.
5. Engineering staff will evaluate the request, collect data if necessary to confirm the magnitude of the problem, and determine if further study is necessary.
6. If the Engineering staff determines that further study is necessary, procedures to address the specific traffic issue will be implemented. These procedures are detailed in the following portion of this policy, "Specific Traffic Concerns."
7. Should changes be warranted, Engineering will share the proposed changes with the impacted residents before any improvements are implemented.

A flow chart that graphically illustrates the above listed procedures is illustrated on the following page.

Traffic Concern Request Flow Chart



SPECIFIC TRAFFIC CONCERNS

Specific types of traffic requests in the City of Friendswood are addressed in this section of the policy.

No Parking/Parking Zone Implementation Requests

As with all requests to review traffic concerns in the City of Friendswood, requests for “No Parking”/“Parking” zone implementation will be addressed with the same measures outlined in the *Procedures* section of this policy.

- Engineering and the originator of the request will define a study area for property owners that may be impacted by a proposed “No Parking”/“Parking” zone.
- An engineering study will determine if a “No Parking”/“Parking” zone is appropriate for the requested area for twenty-four (24) hours per day or for specific days and/or time periods.
- In order to implement a “No Parking”/“Parking” zone, 100% of the property owners that are projected to be affected adjacent to their property must agree in writing to the “No Parking”/“Parking” zone implementation. The requestor will be required to obtain signatures from the owners.
- If deemed appropriate by an engineering study and agreed to by the property owners that will be affected adjacent to their property, “No Parking”/“Parking” signs will be posted by the entire street, block, or logical termination point as determined by Engineering. Other advisory or advanced warning signs will be placed as dictated by sound common engineering practices or the Texas Manual on Uniform Traffic Control devices, latest edition.
- All “No-Parking”/“Parking” zone applications shall be thoroughly reviewed by Engineering after a period of two (2) full years from the date of implementation. The “No-Parking”/“Parking” zone shall remain in effect unless a compelling safety reason is discovered.

As with all requests to review traffic concerns in the City of Friendswood, should the implementation of a “No Parking”/“Parking” zone in the study area be warranted, Traffic Engineering and Operations will share the proposed changes with the impacted residents before any modifications or improvements are implemented.

Additional information concerning no parking/parking zones is included in the **Attachment A** under the title *No Parking and Parking Zones*.

No Parking/“Parking” Zone Removal Requests

As with all requests to review traffic concerns in the City of Friendswood, requests for “No Parking”/“Parking” zone removal will be addressed with the same measures outlined in the *Procedures* section of this policy.

- An engineering study will determine if the removal of a “No Parking”/“Parking” zone is appropriate for the requested area. If appropriate, “No Parking”/“Parking” signs will be removed by the entire street, block, or logical termination point as determined by Engineering and the requesting party. Other advisory or advanced warning signs will be placed, or removed, as dictated by sound common engineering practice or the Texas Manual on Uniform Traffic Control devices, latest edition.

As with all requests to review traffic concerns in the City of Friendswood, should the removal of a “No Parking”/“Parking” zone in the study area be warranted, Engineering will share the proposed changes with the impacted residents before any modifications or improvements are implemented.

Additional information concerning no parking/parking zones is included in the **Attachment A** under the title *No Parking and Parking Zones*.

Commercial Truck Cut-Through Traffic Mitigation Requests:

As with all requests to review traffic concerns in the City of Friendswood, requests for commercial truck cut-through traffic mitigation control will be addressed with the same measures outlined in the *Procedures* section of this policy.

- An engineering study will determine the measures that are appropriate to address the specific commercial truck cut-through traffic mitigation concerns that may exist for the given the study area. In order to be considered a candidate for measures to reduce commercial truck cut-through traffic, a roadway must be a local roadway or a minor collector roadway with residential characteristics with a peak hour volume of over 375 vehicles in one direction with over 40% cut-through vehicles.
- To implement a plan which limits commercial truck cut-through traffic, 100% of the affected property owners must sign a petition as implemented through these policy guidelines.

As with all requests to review traffic concerns in the City of Friendswood, should changes to the study area to control commercial truck cut-through traffic in the study area be warranted, Engineering will share the proposed changes with the impacted residents before any modifications or improvements are implemented.

Additional information concerning commercial truck cut-through traffic is included in the **Attachment B** under the title *Commercial Truck Cut-Through Traffic Mitigation*.

Pedestrian Facility Requests:

As with all other requests to review traffic issues in the City of Friendswood, requests for pedestrian improvements will be addressed with the same measures outlined in the *Procedures* section of this policy.

- Engineering will study the requested location and perform a crosswalk analysis which includes volume of pedestrian traffic, proximity of the subject location to schools, parks, swimming pools, retail centers, hike and bike facilities, vehicular traffic volume, etc.
- The placement of a crosswalk at an uncontrolled intersection or in the middle of a block shall be considered only in rare cases. In general, the placement of a crosswalk at an uncontrolled intersection may create a false sense of security for pedestrians that could increase the likelihood of a vehicle-pedestrian incident.

As with all other requests to review traffic issues in the City of Friendswood, should pedestrian improvements be warranted, Engineering will share the proposed changes with the impacted residents before any modifications or improvements are implemented.

Additional information concerning pedestrian facilities is included in the **Attachment C** under the titles *Pedestrian Safety*, *Pedestrian Signals*, and *Installation of Marked Crosswalks*.

School Zone Safety Requests.

As with all other requests to review traffic issues in the City of Friendswood, requests for school zone safety will be addressed with the same measures outlined in the *Procedures* section of this policy. School zone safety requests encompass a broad range of requests in the vicinity of a school. Common requests in the City of Friendswood are addressed specifically below. Other requests will be addressed on a case per case basis.

- The traffic policy is not intended to replace or alter the existing provisions and ordinances established by the City of Friendswood.
- Reduced speed school zones are areas in which the speed limit is reduced for certain periods of the day that may be requested by individual citizens, communities, or schools. A traffic engineering study will determine if a reduced speed school zone is warranted based on the proximity of the roadway to the school, the type of school (elementary, junior high, senior high, etc.), vehicular volumes, pedestrian volumes, vehicular speeds, availability of sidewalks, alternative routes between the school residential areas served by the school, and other factors.
- Requests for a crosswalk in the vicinity of a school will be treated with the same procedures as outlined in the “Pedestrian Facility Requests” section of this policy. Proximity to schools and type of vehicular control are major factors in the consideration of crosswalks.
- Parking restrictions in the vicinity of a school will be treated with the same procedures as outlined in the “No Parking Zone Implementation” section of this policy. Proximity of schools is a major factor in the consideration of parking restrictions.
- No right-turn on red at signalized intersections in a school zone is a means to reduce the likelihood of conflicts between right-turn vehicles and school aged children in crosswalks. If appropriate, a traffic engineering study will determine the need for no right-turn on red restrictions based on vehicular volumes, pedestrian volumes, traffic signal timing, and other factors.
- The Texas Manual of Uniform Traffic Control Devices (latest edition) does not require the installation of flashing beacons to alert motorists to school zones. The City of Friendswood will consider the installation of school flashing beacons on arterial and collector roadways, but not on local streets.

As with all other requests to review traffic issues in the City of Friendswood, should changes to the conditions within a school zone be warranted, Traffic Engineering and Operations will share the proposed changes with the impacted residents before any modifications or improvements are implemented.

Additional information concerning school zone safety is included in the **Attachment D** under the titles *School Zones* and *School Traffic Safety*

Speed Control Requests.

As with all other requests to review traffic issues in the City of Friendswood, requests for speed control will be addressed with the same measures outlined in the *Procedures* section of this policy.

- Engineering will maintain a database of locations at which excessive vehicular speeds have been reported that will be shared with the Police Department for enforcement purposes.
- The Texas Manual of Uniform Traffic Control Devices (latest edition) states that a speed limit should be posted within 5 mph of the 85th percentile speed of the free-flowing traffic. Engineering Judgement is the overriding determination for all speed limit postings.
- The following alternatives are available to address speed control requests.
 - The Neighborhood Speed Watch Program is a public awareness program through which concerned citizens can take an active role in making neighborhood streets safer by observing and recording traffic speeds in their neighborhood. Additional information and application forms to participate in the Neighborhood Speed Watch Program may be obtained from Traffic Engineering and Operations, the Appendix of this policy, or downloaded at www.friendswood.com.
 - A speed feedback sign may be installed to alert motorists to their actual speed and the posted speed limit on a roadway. Additional information concerning the speed feedback sign is included in the Appendix of this policy.
 - A speed study may be conducted at the site. The speed study will determine the 85th percentile speed and consider other issues in the site vicinity including pedestrian traffic volume, roadway curvature, the frequency of traffic accidents, sight distance restrictions, and other issues specific to the study site. The speed study may determine that the posted speed limit at the study site is too low/high and may recommend that the posted speed be adjusted to within 5 mph of the 85th percentile speed.

As with all other requests to review traffic issues in the City of Friendswood, should changes to the speed control in the study area be warranted, Traffic Engineering and Operations will share the proposed changes with the impacted residents before any modifications or improvements are implemented.

Additional information concerning speed control is included in the **Attachment E** under the title *Speed Limits*.

Intersection Control Requests (Multi-way Stops, Traffic Signals, and Roundabouts):

As with all other requests to review traffic issues in the City of Friendswood, requests for intersection control will be addressed with the same measures outlined in the *Procedures* section of this policy.

- Multi-way stop signs or traffic signals shall not be installed within the corporate City limits of the City of Friendswood unless approved by an authorized warrant analysis and by the City Traffic Engineer.
- Multi-way stops and traffic signals are warranted based on vehicular traffic volumes, pedestrian traffic volumes, vehicular speeds, traffic accident data, and other traffic data in accordance with guidelines defined in the Texas Manual of Uniform Traffic Control Devices (TMUTCD).
- According to the TMUTCD, “regulatory and warning signs should be used conservatively because these signs, if used to excess, tend to lose their effectiveness.” If confirmed by a traffic engineering study, existing multi-way stop locations that are not warranted will be removed by the City of Friendswood.
- According to the TMUTCD, stop signs or traffic signals shall not be installed for the purpose of controlling the speed of a roadway as they have been shown to become a hazard at times when installed without warrant.
- Implementation of multi-way stop signs, traffic signal, and roundabouts will be in accordance with necessary budget considerations.

As with all other requests to review traffic issues in the City of Friendswood, should changes to the intersection control in the study area be warranted, Traffic Engineering and Operations will share the proposed changes with the impacted residents before any modifications or improvements are implemented.

Additional information concerning intersection control is included in the **Attachment F** under the titles *Stop Signs*, *Signal Installation*, and *Roundabouts*.

“Children at Play” and “Deaf Child Area” Sign Requests:

“Children at Play” and “Deaf Child Area” signs are not recognized by the State of Texas or by the Federal Highway Administration as official traffic control devices. These signs may create a false sense of security for parents of children and typically do not achieve the desired safety benefits.

The city does not recommend installing “Children at Play” signs within its boundaries. Existing “Children at Play” signs will be removed by the city that have previously been placed without proper authorization and are not in compliance with this sign policy.

“Deaf Child Area” signs may only be installed in school zones if deaf children attend the school. If installed, these signs will be removed when the deaf child no longer attends the school.

Additional information concerning children at play signs and deaf child area signs is included in the **Attachment G** under the title *Children at Play Signs*.

Other Advisory or Advanced Warning Sign Requests:

As with all other requests to review traffic issues in the City of Friendswood, requests for advisory or advanced warning signs will be addressed with the same measures outlined in the *Procedures* section of this policy.

- Traffic Engineering and Operations will study the requested location and perform an advisory/advanced warning sign analysis which includes volume of pedestrian traffic, proximity of the subject location to schools, parks, swimming pools, retail centers, hike and bike facilities, vehicular traffic volume, etc.
- The requesting party will be informed that it is City policy to only install advisory or advanced warning signs that are in accordance with the Texas Manual on Uniform Traffic Control devices, latest edition.

Other Public Safety and Traffic Issue Requests:

Other requests to review traffic issues in the City of Friendswood will be addressed with the same measures outlined in the *Procedures* section of this policy.

Traffic Engineering and Operations will share the proposed changes with the impacted residents before any modifications or improvements are implemented.

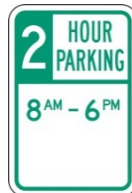
ATTACHMENT A **No Parking and Parking Zones**

Parking Zones:

Commercial Zones are designated for commercial vehicles to load and unload merchandise for up to 20 minutes. Yellow zones are usually found in commercial areas for the use of adjacent commercial areas.



Green Zones are used for limited term parking, usually 20 minutes as indicated on a sign. In any limited parking you can receive a citation if you exceed the maximum limit by 1 minute or more. To avoid a citation, you must vacate the parking space within the time limit specified and let other members of the public use these high demand spaces.



Red Zones indicate no parking at any time and are reserved for fire and emergency vehicles. Any other vehicle parked or encroaching on or in the red zone is considered a violation of the parking restriction and may receive a ticket and/or be towed.



Blue Zones are reserved parking spaces for vehicles used by disabled persons and displaying the appropriate disabled parking placard or license plate.



Where is it illegal to park?

- No Parking Zones marked by No Parking, No Stopping, or No Standing signs.
- In front of a private or public driveway.
- In front of or within 15 feet of a Fire Hydrant.
- Within marked or unmarked crosswalks. An unmarked crosswalk is considered to be an extension of sidewalk boundary lines across a street or driveway.
- On sidewalks.
- In public rights-of-way for the purpose of advertising or selling without proper authorization.
- In handicapped parking spaces without a legally obtained handicap placard or license plate.
- Where a vehicle will obstruct or block a handicapped parking space.
- Within 30' on the approach to a flashing signal, stop sign, yield sign, or traffic control signal located at the side of the roadway.
- Within 3' of a handicap access ramp.
- In stripped loading zones next to handicapped parking spaces.
- Straddling the markings or lines designating a parking stall.
- Along the curb return within 10' of an intersection.
- Within marked hatched no parking areas.
- Within 15' of the entrance to a fire or ambulance station.
- Within 500' of fire trucks or emergency equipment when these are stopped answering a fire alarm or emergency call.
- Other areas as designated in the Texas State Transportation Code section 545.302 which restricts parking even if no signs are posted.

Parking areas for persons with disabilities

Parking areas for persons with disabilities, also known as handicapped parking spaces are established for the exclusive use of vehicles transporting persons with disabilities. Any vehicle parked in a marked handicapped space or tow away zone parking space that does not display a placard or license plate with the international symbol of access can be given a ticket, towed, and impounded. Handicap spaces can be established on public or private property if the property owner and the City Engineer determine the need for such space/spaces.



A citizen with a valid handicap placard or license plate is allowed to park in a regular metered space without paying provided there are no other restrictions by signage. For example: *No Parking 7 – 9 AM or 4 – 6 PM*. However no one can park at meters in commercial loading/unloading zones unless they possess and have visibly displayed in the vehicle a commercial loading/unloading parking permit.

How close to the curb must I park?

All vehicles parking parallel to the curb must park within 18 inches. All vehicles parking at an angle must have 1 front tire within 6 inches of the curb. All parallel parking must have passenger side to curb, unless parked on a one-way street.

What is the maximum length of time I can park my vehicle on the street without moving it?

- Passenger vehicles cannot be parked on public streets for more than 48 hours.
- Trailer/Semi-Trailer cannot be parked on a public street for more than 2 hours.

ATTACHMENT B

Commercial Truck Cut-Through

Truck cut-through traffic trying to avoid congestion on major streets is a growing concern to city residents. Local and residential streets were not typically designed to carry high volume or heavy loaded through traffic. This unnecessary through traffic generates noise, air pollution, and creates other issues, including safety, for residents. Some trucks also try to park on narrow residential streets, which also causes concerns for the residents and emergency vehicles.

Residents concerned with high volumes of truck traffic traveling through, or parking in, their neighborhood have several remedies available. The City will evaluate the specific problems of your street and implement the most effective solution if the conditions warrant action.

Definitions of “Commercial Vehicle” and “Commercial Truck”

A commercial vehicle can be defined as any vehicle that is used and maintained for commercial purposes. A commercial truck is a commercial vehicle with more than 2 axles.

Cut-Through Traffic

Cut-through traffic can be defined as commercial vehicles passing through a neighborhood without at least 1 trip end (origin or destination) in that neighborhood. Cut-through traffic causes unwanted noise, dust, pollution, and safety issues for residents. Cut-traffic can be passenger vehicles, commercial vehicles, and/or commercial trucks. A cut-through commercial vehicle or truck is one that passes through a street/neighborhood without a scheduled stop in that neighborhood.

In additions to pollution and safety issues, cut-through commercial traffic cause pavement deterioration of the neighborhood roads since most neighborhood roads are not designed for heavy commercial traffic.

Cut-through traffic is also defined as motorized vehicles cutting through a parking lot and/or business to avoid heavy traffic or traffic control devices such as Stop/Yield Signs or traffic signals.

Possible Solutions

If your neighborhood has a high volume of cut-through traffic, you can request a traffic study by filling out the Traffic Concern form and sending it to the Engineering Division. Upon receiving a completed request form, the Engineering Division will make an initial determination of the need for a study as in outlined in the procedures of this policy. Counteractive measures such as signage and enforcement, or traffic calming measures may be instituted.

Parking in Residential Neighborhoods

Residential neighborhoods, which are in close proximity to busy commercial areas with limited parking facilities or near a truck parking facility/compound, may find unwanted vehicles parked in the neighborhood. Commercial Vehicles cannot be parked on a public street overnight and trailer/semi-trailer cannot be parked on a public street for more than 2 hours.



DRAFT

ATTACHMENT C **Pedestrian Facilities**

I. PEDESTRIAN SAFETY

The need for Pedestrian Safety:

Whether for school, work, or recreation, most of us walk every day. However, some people have to walk as their primary means of transportation or choose to walk to improve their health. Whatever our reasons may be for walking, pedestrians have a legitimate right to walk without feeling unsafe or uncomfortable. Since most of our roads were designed for vehicular traffic, we need to improve walkability in our communities and make them safer for walking.

Typical Issues with Pedestrian Safety

The first step in improving pedestrian safety involves identifying the problem. Residents can help identify the pedestrian safety concerns in their neighborhoods. The following lists some of the typical problems associated with pedestrian safety and can be used as a guide in identifying problems in a neighborhood.

Poor or Inadequate Walking Facilities

- Existing sidewalks and trails are insufficient and do not connect to schools, parks, churches, etc. Dirt paths or desire lines show that more sidewalks or paths are needed.
- Existing sidewalks are not wide enough for people to walk comfortably or pass each other.
- Sidewalk surfaces are uneven, broken, or covered with debris.
- Sidewalks and paths are blocked by barriers such as vehicles, trash cans, vegetation, utility poles, mail boxes, benches, or other obstructions.
- There is not enough space between the sidewalk and the roadway to make pedestrians feel comfortable.
- The intersections are wide and crossing distances are long. Turning radii at the intersections allow cars to turn at higher speeds.
- Bicyclists riding on the sidewalk (possibly because they do not feel safe in the street) cause conflicts with people walking.

Unsafe Driver Behaviors or Traffic Characteristics

- Drivers do not stop or yield to pedestrians crossing the roadway.
- Drivers drive too fast through neighborhoods, around schools, or near other places where people are walking.
- Drivers take short cuts through neighborhoods to avoid traffic on major roads.
- Red light or stop sign runners endanger pedestrians and bicyclists.
- Drivers pass other vehicles stopped at crosswalks for pedestrians or pass stopped school

buses.

- Drivers are more distracted than ever by cell phones, electronic media, passengers, and other activities.

Unsafe Pedestrian Behaviors

- Pedestrians do not look both ways before crossing the street.
- Pedestrians attempt to cross the street when traffic is approaching.
- Pedestrians cross against pedestrian signals.
- Pedestrians crossing midblock where there are no crosswalks.
- Pedestrians, like drivers, can be distracted by cell phones and other electronic devices.

Typical Solutions

Once the problem or problems have been identified, the next step is developing an appropriate solution. Pedestrian transportation improvements or potential solutions for pedestrian safety are described in terms of the “Four E’s”:

1. **Engineering** – Physical changes to infrastructure (i.e., sidewalks, traffic signals, signs, etc.) that affect the operation and movement of traffic and pedestrians.
2. **Education** – Includes strategies that aim to educate pedestrians, drivers, or other groups in order to motivate a change in behavior.
3. **Enforcement** – Community-based or law-agency-based measures to enforce laws and regulations related to pedestrians.
4. **Encouragement** – Efforts to promote walking and increase the level of walking in a community.

II. Pedestrian Crosswalks

Crosswalks

A crosswalk is typically defined as a designated portion of the roadway that pedestrians use to cross the street. A crosswalk may be marked or unmarked. There is no legal difference between marked and unmarked crosswalks at controlled intersections (those with stop signs or traffic signals). However, marked crosswalks at mid-block locations provide a designated and legal crossing zone for pedestrians.

1. Unmarked Crosswalks – most every intersection is considered to represent a crosswalk, even if it is not marked as such. An unmarked crosswalk is basically the extension of a sidewalk that extends across intersecting roads.
2. Marked Crosswalks – are those crosswalks marked with pavement markings,

usually 12' wide white pavement markings on 6' centers, either plain, perpendicular crosshatched, or 45 degree crosshatched.

3. Enhancements – are traffic control devices or signals that enhance and aids the safe movement of pedestrian traffic in the roadways.



Benefits of Marked Crosswalks

Marked crosswalks guide pedestrians to a proper crossing location and alert motorists of a pedestrian crossing point. However, at uncontrolled locations, marked crosswalks may create a false sense of security for pedestrians resulting in a greater number of pedestrian crashes (if additional safety treatments are not provided).

City Policy on Marked Crosswalks

The City's current policy is to install marked crosswalks at controlled intersections where there is a demonstrated need. Crosswalks are also marked at established school crossings. At other locations, an engineering study must be conducted to ensure that marked crosswalks are installed only where there is significant pedestrian activity and/or based on engineering judgment. The need for, and potential use of, a proposed crossing varies with each location, each should be considered individually, and with an effort to maintain consistency in the decision making process. Approval of marked intersection on state highways, or an intersection of a state highway and city road, within the City Limits shall be coordinated with TxDOT.

Categories of Marked Crosswalks

Marked crosswalk locations fit into 1 of 3 categories:

1. Marked crosswalks are **Standard** on signalized approaches at intersections.
2. Marked crosswalks alone (without other enhancements or treatments) are **Permitted** on roadways with posted or 85th percentile speeds less than or equal to 35 mph, if recommended as part of an engineering study and approved by the City Engineer.
3. Marked crosswalks with enhancements or active devices are installed on roadways with posted or 85th percentile speeds greater than 35 mph, if recommended as part of an engineering study and approved by the City Engineer. Such enhancements might include traffic calming features (i.e. median refuge

islands, curb extensions, narrowed travel lanes, traffic diverters, chicanes), illumination, or enhanced devices (i.e. advance signage), or active devices (i.e. pedestrian-activated signals).

III. Pedestrian Signals

Why do some traffic signals have push button and signal indications for pedestrians and others do not?

Pedestrian signals are primarily installed for 2 reasons:

1. A high volume of pedestrian traffic present; or
2. The green time given for vehicles in a particular direction is not sufficient for pedestrians to cross the roadway in that direction.

When signal indications for vehicles are easy to see and provide plenty of green time for pedestrians to cross safely, push buttons and pedestrian signal indications are often not needed. Push buttons are sometimes provided at intersections where the signal timing is typically controlled by the volume of vehicular traffic. If traffic volumes are low at these intersections, pedestrians will not have enough time to cross the street without push buttons. If pedestrian crossing times were factored into every signal cycle, many intersections would become inefficient and delay vehicles more than necessary. The use of pedestrian push button allows extra time to be provided only when a pedestrian is present.

What do pedestrian signals mean, and why isn't there enough time to cross the street during the walk indication on a pedestrian signal?

The City has in use the pedestrian signals that indicate illuminated symbols of a walking person and an upraised hand, along with a countdown timer of how many seconds of time until the pedestrian signal indicates "Do Not Cross". The signals are timed for an average walking distance of 4 feet per second.

- The steadily illuminated upraised hand indication means that a person should not enter the roadway in the direction of the signal.
- The walk symbol (the white colored walking person) means that a pedestrian may start crossing the road toward the signal.
- The flashing orange upraised hand means you can continue to cross, but there is not adequate time to begin crossing. The purpose of the flashing indication is to keep pedestrians from entering an intersection too late and to let pedestrians already in an intersection know that their time to finish crossing is becoming shorter, which is now indicated by the countdown timer.

Will pushing the pedestrian walk button several times make the signal change faster?

No, the walk button will send a message to the controller requesting a walk indication be granted to the requested direction in the next available signal cycle. Continuously pressing the pedestrian button does not send additional messages to the controller since the controller has already acknowledged the pressing of the walk button with the first push.

Why do vehicles keep turning even when the pedestrian signal indicates that pedestrians have the right to cross?

Pedestrian signals assign the right-of-way for pedestrians to cross the street. However, since right turns on red are allowed, some drivers may make right turns without yielding to pedestrians or do not see the pedestrian signals. This is why it is important to always be cautious when crossing busy intersections. The following suggestions are offered in the interest of safety:

- Always cross intersections defensively.
- When crossing the street, regardless of the availability of signals, cross as quickly as possible. Minimize your time in the roadway.
- Always watch for turning vehicles. You have the legal right to be there, but that does not protect you from the carelessness of some motorists.
- Whether marked or unmarked, or signalized **ALWAYS** look both ways before crossing the roadway.

ATTACHMENT D

School Traffic Safety

School Traffic Safety Statistics

On average, each year 23 school-age children die in school related traffic accidents in the United States. Out of these, 6 are occupants of school transportation and 17 are pedestrians. Based on these statistics, the City would like to stress the importance of pedestrian safety around schools and school buses. However, pedestrian safety is not solely dependent upon the pedestrians themselves but is very much dependent upon the driving practices of motorists near and around schools and school buses.

I. AROUND SCHOOLS

Pedestrian Safety Tips for Children

Most people, and especially young children, cannot judge the speed, distance, and size of oncoming vehicles. Parents should walk the route to school (or other destinations) with children and point out safe and unsafe practices. This includes locations where children may go to catch a bus.

- At a traffic signal, the green light or walk signal (the white walking person) means that children should stop at the curb or edge of the road, look both ways for oncoming traffic, and then if it is safe, cross the street. Having the walk indication or green light does not guarantee that cars will stop. Pedestrians must always look for oncoming and turning traffic even when they have the right of way.
- Before crossing the street, children may want to wait for a “fresh green light.” This means that they wait for the next new walk indication if the “don’t walk” indication (upright orange hand) is flashing and the countdown timer is nearing zero. Doing this gives them the most time to cross.
- If children are in the middle of the street and the “don’t walk” indication begins flashing, they should not stop or return to the curb or edge, but continue on to walk at their maximum comfortable pace until they reach the other side. They should not run as they might fall.
- And Remember;
 - Children crossing the street should be accompanied by an adult whenever possible.
 - Avoid crossing streets at mid-block, especially when parked vehicles may obstruct vision. Use stop signs, traffic signals, and crossing guards when available.
 - Children should not follow others or run to others when the call until a safe crossing is available.

Vehicle Safety Around Schools

Parents and other adults can do much to improve traffic safety around schools by driving cautiously, teaching children safe practices, and limiting vehicle trips. Drivers should obey all traffic laws and apply the following practices:

- Carpooling can reduce the number of vehicles near the school, especially during inclement weather.
- Avoid parking on the opposite side of the street from the school. When it is necessary, instruct children on how to safely reach the vehicle.
- Make sure that children are careful when opening vehicle doors and that they enter and exit on the curbside of the vehicle. Children should not be allowed to cross in the middle of the block to reach the vehicle.
- Drivers should not double park or block traffic. Waiting or parking in red zones is also not allowed.
- Do not block buses or use areas designated for buses only. If an emergency vehicle requires access, the area should be cleared.
- Never leave a vehicle unattended in a loading zone.
- Do not park in a crosswalk or pass a stopped vehicle allowing pedestrians to cross.
- Do not violate the law by using the excuse “I will just be here a minute” when picking up or dropping off children. Violations still present a danger and cause congestion during the time of day when it is most important to provide safety for children and avoid congestion.
- Learn the traffic patterns at and near a school to avoid being a disruption.
- Pay attention to children getting in and out of vehicles. Children sometimes forget to use the curb side door and exit suddenly.

Crossing Guards

The City is responsible for the assignment and designation of crossing guards for the schools within the City Limits. Crossing Guards are employees under the Police Department and have the force of law for traffic movements in school zones. Children and motorists should follow their directions when directing traffic and helping children crossing the street.

II. AROUND SCHOOL BUSES

School Bus Safety – Children

When waiting for, riding, and exiting the school bus, children should follow these rules:

Getting on the School Bus

- When waiting for the school bus, stay away from traffic and avoid roughhousing or other behavior that can lead to carelessness. Do not stray into streets, alleys, or private property.

- Line up away from the street or road as the school bus approaches.
- Wait until the bus has stopped and the door opens before stepping into the roadway.
- Use the handrail when stepping onto the bus.

Behavior on the Bus

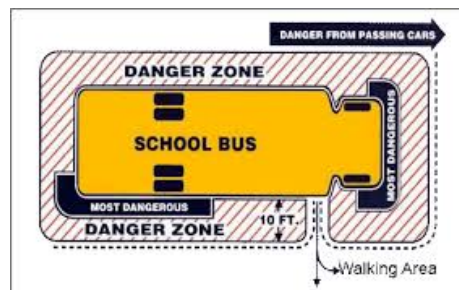
- When on the bus, find a seat and sit down. Loud talking or other noise can distract the bus driver and is not allowed.
- Never put head, arms, or hands out of the window, nor throw anything out of the window.
- Keep aisles clear. Books and bags are tripping hazards and can block the way in an emergency.
- Before you reach your stop, get ready to leave by getting your books and belongings together.
- At your stop, wait for the bus to come to a complete stop before getting up from your seat. Then, walk to the front door and exit using the hand rail.

Getting off the School Bus

- If you have to cross the street in front of the bus, walk at least 10 feet ahead of the bus along the side of the road, until you can turn around and see the bus driver.
- Make sure the bus driver can see you.
- Wait for a signal from the bus driver before beginning to cross.
- When the bus driver signals, walk across the road, keep an eye out for sudden traffic changes.
- Stay away from the bus's rear wheels at all times.

School Bus Safety – Parents

- If possible, accompany children to school bus stop and help them get in and out.
- Teach children to follow common sense practices and **ALWAYS STAY OUT OF THE DANGER ZONE OF THE BUS.**



School Bus Safety - Motorists

- When backing out of a driveway or leaving a garage, always watch out for children walking or bicycling to school.

- When driving in neighborhoods with school zones, watch out for young people who may be thinking about getting to school, but may not be thinking about getting there safely.
- Slow Down! Watch for children walking in the street, especially if there are no sidewalks in the neighborhood.
- Slow down! Watch for children playing in and congregating near bus stops.
- Be Alert! Children arriving late for the bus may dart into the street without looking for traffic.
- Learn to obey the school bus laws. Learn the “flashing signal light system” that school bus drivers use to alert motorists of pending actions:
 - **Yellow Flashing Lights** indicates that the bus is preparing to stop to load or unload children. Motorists should slow down and prepare to stop their vehicles. It also means that the motorist should NOT speed up to pass the bus before the red flashing lights are on.
 - **Red Flashing Lights** and extended stop arms and stop signs indicate that the bus has stopped, and that children are getting on or off. Motorists must adhere to the driving law below and only proceed when the red lights stop flashing and the extended stop sign and bar is withdrawn, and the bus begins moving before they can start driving again.
 - Two Lane roadways, with traffic in both directions, both traffic lanes shall stop.
 - Multi-lane roadways with or without center turn lanes, traffic shall stop in both directions.
 - Roadways divided by raised medians, the traffic traveling in the same directions as the bus shall stop. The traffic in oncoming direction on the other side of the median shall slow and proceed with caution, but it is also suggested that motorist stop for the ultimate safety.

School Zone Signs and Operations

School zones may be installed on streets that border school property line and where students cross a roadway. The signs can be static or include flashers. The flashers are usually installed on roadways with more than 5,000 vehicles per day. The signs conform to the standards and specifications in the Texas Manual on Uniform Traffic Control Devices.



School zone times shall be established and installed according to the following general guidelines:

- **Morning Times** – 45 minutes before start to 15 minutes after the start of school.
- **Midday** – beginning to end of lunch period.
- **Afternoon Times** – 15 minutes before dismissal to 30 minutes after dismissal of school.

These times may be adjusted at each school based on individual campus requirements.

Parking Regulations

In order to promote safe and efficient traffic circulation around a school, it may be necessary to regulate, restrict, or prohibit parking, stopping, or standing adjacent to the school grounds or at an established school crossing. The Department of Public Works will determine if the street needs parking restrictions.

Crosswalk Location and Installation

Crosswalks are located to enhance the utilization of sidewalks, to serve school routes and to define the appropriate crossing area in the street at high pedestrian volume intersections. When reviewing an area for installation of a crosswalk, the proximity to a school is one factor. Other factors include: volume of vehicular and pedestrian traffic, average vehicular speed, visibility available to motorist and pedestrians, type of traffic controls present, width of street to be crossed, and location of adjacent crosswalks.

ATTACHMENT E

Speed Limits

Authority

Speed limits are set by statute by the Texas Transportation Code § 545.352. The statute specifies the following speed limits:

- Streets in Urban Districts – 30 mph
- Alley in Urban Districts – 15 mph
- State or Federal numbered highways outside of Urban Districts – 70 mph. Any other highway outside of the Urban District – 60 mph.

These are known as “prima facie” limits and do not require signs for enforcement. For example, in the absence of any other speed limits sign, the speed limit is 30 mph in residential districts within the City Limits. The City Council may alter the maximum or prima facie speed limits based on an engineering and traffic study on any street or portion thereof within the City. The altered speed limits are posted regulatory speed limit signs (signs with black text on white background) and are considered prima facie (or legal) for enforcement.

Speed Zoning

When an engineering study determines that statutory speed limits are not appropriate for the existing road and traffic conditions, altered speed limits are established using speed zoning. The types of speed zones are:

- **Regulatory Speed Zones** impose a restriction on a particular roadway and indicators of the speed limitations imposed by physical and traffic conditions of the roadway. Regulatory speed limits are posted using regulatory speed limit signs which has black lettering on white background as shown in the Texas Manual on Uniform Traffic Control Devices for Streets and Highways (TMUTCD).
- **Construction Speed Zones** may be regulatory or advisory speed zones through a construction project depending on the importance of speed control in the construction zone. Construction advisory signs are typically black lettering on an orange background.
- **School Speed Zones** are established in accordance with city policy on School Zone Installation and Removal and in accordance with State Law. Maximum speed reduction allowed is 15 mph under the posted speed limit.
- **Advisory or Warning Speeds** are desirable speeds for curves, intersections, or other locations where design standards or physical conditions of the roadway restrict safe operating speeds to value less than the maximum legal speeds or posted regulatory speed limit. Advisory speed signs supplement other warning signs (such as for a curve) and have a black message on a yellow background.

What is the Law?

All drivers are required to obey the posted speed limits. These limits are designed to provide for the orderly flow of traffic under normal driving conditions. During periods of heavy traffic, inclement weather, low visibility, or other poor driving conditions, speed must be adjusted so that accidents will be avoided. In the absence of posted speed limits, prima facie speed limits are in effect. Any speed in excess of the legal speed limit on that roadway will be considered prima facie (or “on the face of it”) evidence that the speed is unreasonable, non-prudent, and unlawful.

How are Speed Limits Established?

Regulatory speed zones are established in accordance with the procedures described in the TxDOT manual “Procedures for Establishing Speed Zones”. Posted speed limits are set by the 85th percentile method, which represents the speed of the majority of drivers will be traveling at or below. Speed checks are conducted to determine the 85th percentile speed. The observed free-flowing speed for vehicles is tallied and the 85th percentile speed is calculated using collected data. To ensure a true reflection of normal traffic situation, speed checks are made on average weekdays during off-peak hours, under favorable weather conditions.

The speed limit is normally set at the nearest value to the 85th percentile speed ending in 5 or 0. The posted speed limit may be adjusted downwards of the 85th percentile speed based on the following factors:

- Roadway pavement width of 20 feet or less.
- Curves and hills.
- Hidden driveways and other developments.
- High number of driveways.
- Crash history.
- School crossings and characteristics of sites that generate traffic.
- Lack of striped, improved shoulders.

Once a speed limit is determined, the speed zone is added to the Ordinance 300 identifying the limits and speed of the speed limit zone. After approval by the City Manager, or their designee, the sign shop is instructed to install the necessary signs at the locations approved and shown in the Ordinance 300 memo.

Speed Limit Misconceptions

Studies have shown that there is no significant change in speeds following the posting of a revised speed limit. This is true whether the speed limit is increased or decreased. Safety is also not improved by establishing unreasonably low speeds limits. Some misconceptions about speed limits include:

- Reducing the speed limit will not slow the speed of traffic;
- Reducing speed limits will necessarily decrease the number of crashes and increase safety;
- Having a posted speed limit is not necessarily safer than an unposted speed limit; and
- Drivers always go 5 to 10 mph over the posted speed limit.

Why Do We Need Speed Limits?

Speed limits which are realistic and reasonable:

- Encourage compliance from a majority of the drivers;
- Give a clear reminder of reasonable and prudent speeds;
- Provide an effective enforcement tool to the police; and
- Encourage drivers to travel at the speed where the risk of crash involvement is the lowest.

Studies have shown crash rates are lowest at around the 85th percentile speed. Drivers traveling significantly faster OR slower than this speed are at greater risk for being in a crash. It is not high speeds alone that relate to crash risk; it is variation of speed within the traffic stream. In fact, on a per mile driven basis, high speed roadways, like interstates, have a lower speed-related fatality rate than low speed roadways because large variations in speed within the traffic stream create more conflicts and passing maneuvers (and opportunities for driver error and collisions).

However, unrealistic speed limits:

- Discourage voluntary compliance;
- Create perception of “speed traps;”
- Cause public antagonism toward the police;
- Create a bad image for a community in the eyes of non-residents; and
- May increase the potential for crashes.

ATTACHMENT F **Intersection Controls**

I. STOP SIGNS

Stop Signs

A STOP sign is a sign used to direct motorists to stop at the spot where the STOP sign is located. STOP signs are a method for controlling traffic at intersections where the normal application of the right-of-way rule is insufficient to ensure safety and provide reasonable compliance with the law. These signs are found on the right side of the roadway (and in some cases in the median to increase visibility). When more than two directions are controlled by STOP signs, then a supplemental ALL WAY plaque shall be used to inform motorists of the type of traffic control that exists at the intersection. If a STOP sign is in its correct location and it cannot be seen very well due to hills or curves, a STOP AHEAD warning sign may be used in advance on the approach to the STOP sign.

Installation Policy

STOP sign installations will be addressed according to the City of Friendswood Sign Policy, current edition. STOP signs at an intersection are installed only upon the approval of the City Engineer and reflected in the Ordinance 300, after a careful investigation has been made of existing conditions. The investigation is conducted using the guidelines for installing STOP signs provided in the Texas Manual on Uniform Traffic Control Devices (TMUTCD).

Should STOP Signs Be Used to Control Speeding in Neighborhoods?

This is a question that is frequently asked or requested from citizens concerned about speeding in their neighborhood. Although the City does share the concerns of the citizens about speeding and safety in residential neighborhoods, the installation of STOP signs is not the appropriate way to solve the problem of speeding. STOP signs are traffic control devices intended for assigning rights-of-way, not controlling speed. Traffic calming devices (as stated in the City's Traffic Calming Policy) and police enforcement have been found to be much more effective in controlling speeding.

STOP signs result in speed reduction only near the sign, and drivers tend to speed up between STOP sign controlled intersections to make up for perceived lost time. According to National Engineering Transportation Study, when required to stop by cross street traffic, 5% to 20% of all drivers come to a complete stop, 40% to 60% will come to a rolling stop below 5 mph, and 20% to 40% will pass through at higher speeds.

Often, unjustified STOP signs are ignored by motorists, which can be more dangerous than speeding. Therefore, it is the City's policy not to install STOP signs to control speeding.

Adverse Impacts of Unjustified STOP Signs:

- Unjustified STOP signs cause motorists frustration when they are forced to stop for no

apparent reason. Unwarranted STOP signs result in disrespect for all signs and reduce the effectiveness of STOP signs at other intersections where they are essential for safety.

- Vehicle emissions account for much pollution in the air. These emissions increase when vehicles are accelerated and decelerated. It is important to minimize unnecessary stops since steady speeds increase fuel economy and reduce vehicle emissions. Unwarranted STOP signs increase the number of unnecessary stops and reduce the efficiency of our transportation system which results in increased air pollution.

II. YIELD SIGNS

Yield Signs

At intersections where a full stop is not necessary at all times, consideration should be first given to less restrictive measures such as a YIELD. A YIELD sign is used to assign rights-of-ways on certain approaches to an intersection. Vehicle controlled by a YIELD sign need to slow down to a speed that is reasonable for the existing conditions or stop when necessary to avoid interfering with conflicting traffic.

Installation Policy

YIELD sign installations will be addressed according to the City of Friendswood Sign Policy, current edition. YIELD signs at an intersection are installed only upon the approval of the City Engineer and reflected in the Ordinance 300, after a careful investigation has been made of existing conditions. The investigation is conducted using the guidelines for installing YIELD signs provided in the Texas Manual on Uniform Traffic Control Devices (TMUTCD).

III. TRAFFIC SIGNAL INSTALLATION

Purpose

When warranted, properly designed, located, and operated, traffic control signals can provide orderly movement of vehicular and pedestrian traffic, can reduce the frequency and severity of certain types of crashes, and can increase the traffic handling capacity of the intersection. These benefits have perpetuated a common belief that traffic signals provide the solution to all traffic problems at intersections.

However, when unwarranted and improperly designed, traffic signals cause excessive delays, driver frustration, disobedience, overuse of less adequate routes, and increased collisions. This is why the City of Friendswood looks at every intersection being considered for signalization very carefully to determine that a signal is indeed needed.

Signal installation requests, like all other requests for signage, starts with a traffic concern report to the Engineering Division of the Department of Public Works. There will be an initial review and determination as stated in the procedures in the City of Friendswood's Sign Policy. As is true with all warrant justifications, the same is true of Traffic Signals having to meet the analysis and standards in the Texas Manual on Uniform Traffic Control Devices (TMUTCD).

Construction, Operation, and Maintenance

Once the signal is approved for placement, plans are created for construction. Depending on the conditions at the intersection, it may require up to two years to recommend design, and construct a traffic signal. Once constructed, the traffic signal is maintained by either Texas Department of Transportation (TxDOT) for signals on highways and Farm-To-Market Roads, Harris County in Harris County or the City in Galveston County. If a traffic signal is malfunctioning, please notify the Police Department.

DRAFT

ATTACHMENT G **Children At Play Signs**

We Have a Lot of Small Children in Our Neighborhood; can we get a “Children at Play” sign?

The City of Friendswood often receives a lot of requests to install signs warning drivers of the possible presence of “Children at Play.” However, these signs may give a false sense of security and have been proven to be ineffective. In residential areas within the City, drivers should expect children to be present. Studies have shown that signs attempting to warn motorists of normal conditions do not achieve the desired safety benefits.

The City of Friendswood does not want to endorse that children can or should be allowed to play safely on or near streets. These signs are not warranted or part of the Texas Manual on Uniform Traffic Devices (TMUTCD). Current Children at Play signs exist in the city in residential areas, but will not be replaced if faded, stolen, or destroyed. However, the City does have in place a process wherein the HOA can petition for these types of signs to be put in their neighborhood in the rights-of-way. These will still need to follow the typical procedures for all other signage with the addition of the following:

- The HOA will have to submit minutes that this was approved at a general HOA meeting with advanced notification relayed to residents of the proposal to install these signs.
- There will need to be a plan establishing the locations of the signs to be installed.
- If approved by the HOA and the Traffic Committee, the HOA would have to purchase the signs, sign bases, and poles and bring them to the Department of Public Works. The Department of Public Works will install the signs at the agreed upon locations that have been approved.
- The signs would have to be added to the insurance policy of the HOA.
- As stated previously, stolen, damaged, or faded signs will not be replaced by the City.



ATTACHMENT H

Speed Bumps, Humps, and Lumps

Speed Bumps, Humps, and Lumps are traffic calming devices that use vertical deflection to slow vehicular traffic in order to improve safety conditions. Although their uses are effective in keeping vehicle speeds down, Engineering Studies have shown that drivers will increase their speed in between vertical speed traffic calming devices to make up for perceived lost time due to slowing down to negotiate the vertical device.

Speed Bumps

Speed Bumps are an abrupt raised area in the pavement surface, effective at controlling speeds on low volume private driveways and parking lots and have the following characteristics:

- Typically they are 3 to 6 inches in height with a travel lane width of 6 to 12 inches.
- Cause significant driver discomfort at typical residential speeds.
- Cause vehicles to slow at 5 mph or less at the bump.
- Considered an increased liability risk on public roads.
- Truck, Emergency Response, cargo, and bus passengers more likely to be affected.
- Maintenance headache.

Speed Humps

Speed Humps are a gradual raised area in the pavement surface and are typically for use in residential and low speed roadways, and have the following characteristics:

- They are typically 3 ½ inches in height with a travel length of 4 to 6 feet.
- Create a gentle rocking motion slowing most vehicles down to 15 to 20 mph, and 25 to 30 mph when properly spaced.
- They are typically painted to identify vertical change in the roadway.
- Need to be properly designed, marked, and signed according to standards in the TMUTCD.
- Effective at controlling speeds without creating accidents or imposing unreasonable or unacceptable safety risks.
- Either permanent bituminous ones or portable ones can be installed; there are pros and cons to each type.
- Can be utilized as a raised crosswalk as well.

Speed Lumps

Speed Lumps are relatively new and have the effect of slowing vehicles down as does a speed hump, but the main problem is that speed humps still cause ALL traffic to slow down. Speed lumps are a hybrid combination of speed bumps and humps. Speed lumps are in a nominal size and placed with a gap between them. This gap is spaced (normally 2 feet) so that emergency

vehicles, such as fire trucks and ambulances, which have a wider wheel base width, can easily transverse the gaps where normal vehicles cannot. Added to the safety issue is that the edges near the gaps are either parabolic or flat.

DRAFT

APPENDIX H

Streetlight Policy

I. SUMMARY:

The goal of this policy is to provide for effective procedures for review, approval, and installation of streetlighting throughout the City of Friendswood. This Policy will enforce requirements specifically targeting areas where existing lighting conditions are deemed to be insufficient for public safety and areas of new residential, commercial, and industrial development.

II. GENERAL:

Streetlight installation is intended as the basis for fixed lighting on all roadways. Careful considerations shall be taken in the making streets and roadways safe during hours of darkness. Certain criteria as shown in the Warranting section of this policy shall be a part of the evaluation process for the need of street lights. Streetlights are to be installed on City owned streets to illuminate the roadway. They are not to be installed on private streets, parking lots, or for security lighting. A street segment shall be in the City Limits in order to be eligible for street lights. All street lights are installed, owned, and maintained by Texas New Mexico Power Company (in Galveston County) or CenterPoint Energy (in Harris County). Once a street light is installed, the City shall pay the monthly operating and maintenance cost of the streetlight.

III. WARRANTING:

The Warranting Process that is used is based on the Transportation Association of Canada (TAC) Guide for Roadway Lighting (27) which was based on the Roadway Lighting Handbook published by the U.S. Department of Transportation. This Streetlight Warrant system is a conditional based and not observed based system. Factors that are taken into consideration are divided into four sections; 1) Geometric, 2) Operational, 3) Environmental, and 4) Collision. Each individual factor is rated from 1 to 5 in accordance with the parameters listed in the warranting worksheet. Each individual factor is weighted as a percentage of the whole, and on a point system of 0 to 100, the warranting condition must achieve a minimum of 60 points to warrant the installation of a streetlight, yet the City Engineer is the final authority of approval for a streetlight.

a. GEOMETRIC SECTION:

There are eight factors that are considered under the Geometric Section of the Streetlight Warrant Process:

- Total number of lanes including center turn lanes.

- Width of the lanes.
- Number of median openings per mile.
- Number of driveways and entrances per mile.
- Horizontal curve radius.
- Vertical grade.
- Sight distance.
- Parking.

b. OPERATIONAL SECTION:

There are five factors that are considered under the Operational Section of the Streetlight Warrant Process:

- Signalized intersections.
- Left turn lanes.
- Median width.
- Posted speed.
- Pedestrian activity.

c. ENVIRONMENTAL SECTION:

There are five factors that are considered under the Environmental Section of the Streetlight Warrant Process:

- Percentage of development adjacent to roadway.
- Area classification
- Distance from development to roadway.
- Ambient lighting.
- Raised median curb.

d. COLLISION SECTION:

There is only one factor in the Collision Section of the Streetlight Warrant Process. This is a Night-to-Day ratio of accidents occurring on the street that is being reviewed.

Lighting is warranted where a total point-score of 60 or more is achieved. Lighting of equal scores may be prioritized by also using the different sections in the Warrant Worksheet.

IV. NEW SUBDIVISION INSTALLATION

As per the approved Streetlight Policy for New Development approved by Friendswood City Council Action, the following shall apply:

- a. All subdivision plats shall include a provision for streetlighting using concrete poles.
- b. Streetlights shall be provided at all corners and intersections and, in addition, at two hundred fifty (250) foot intervals along residential streets. Additional lights may be required at the option of the City Engineer.
- c. Each streetlight shall be at least one hundred (100) watts on local and collector streets and two hundred fifty (250) on major thoroughfares.
- d. All necessary easements for streetlighting shall be shown on the final plat prior to final approval by the City of Friendswood and the Planning and Zoning Commission.
- e. The City shall authorize the installation of public streetlights after acceptance of the subdivision by the City for the contractor's one-year maintenance period.

V. PRIVATE SUBDIVISION INSTALLATION

- a. The Developer/Owner may install a private streetlight system in accordance with the standards outlined above, except that ornamental poles other than concrete may be used. Wood poles shall not be used in any new streetlighting system.
- b. The Developer/Owner shall be required to provide for the installation of this private streetlight system and also provide for its perpetual operation and maintenance,
- c. The Final Plat shall indicate that streetlighting is private and this shall also be labeled on all construction plans.

VI. EXISTING SUBDIVISION INSTALLATION

The City's franchise utilities Texas-New Mexico Power (in Galveston County) and CenterPoint Energy (in Harris County) have established programs for installing streetlights in the City. The City will evaluate all requests for streetlights within the guidelines of this policy and the warranting system.

a. STREETLIGHT POLE TYPES

In all cases, any pole to be installed shall match any existing poles already installed inside the subdivision.

- Wooden Poles – lights shall only be installed on existing wooden utility poles served by overhead distribution. The light shall be installed on the existing wooden pole. An additional wooden pole may be installed to

serve a specific need. Other than state previously, no wooden shall be used in areas where the power is distributed underground.

- Concrete Poles – shall be installed on other areas such as commercial/industrial/collector roads within the City Limits.
- Metal Poles – shall be used on all thoroughfare roads inside the City Limits.
- The exception to the above mentioned poles would be the streetlights required in the downtown district by the Design Criteria Manual.

b. STREETLIGHT SPACING AND PATTERN

- All intersections shall have a minimum of one (1) streetlight.
- Undivided roadways less than sixty (60) foot width from back of curb to back of curb shall stagger the streetlighting along both sides of the roadway.
- Undivided roadways greater than sixty (60) foot width from back of curb to back of curb shall pair the streetlighting along both sides of the roadway.
- Divided roadways shall be pair the streetlighting along both sides of the roadway or as an option approved by the City Engineer, substitute one (1) streetlight in the middle of the median/dividing device in lieu of two (2) along both inside lanes of the divided roadway.
- Spacing in rural areas that have large acreage lots may be extended to five hundred (500) foot spacing and staggered along both sides of the roadway.

c. STREETLIGHT COST

The cost of installing new or additional streetlighting would be absorbed by the City of Friendswood, however in the event that there is not available power on the roadway (either overhead or underground), the City would partner with the Homeowners Association or other responsible entity.

- In either case, the City would need to have a letter from the HOA or other entity approving the installation and location of the new streetlight.

- The HOA or other entity approving the installation would be required, if power is not available in the Right-Of-Way of the roadway, to purchase, provide, have surveyed, and recorded all necessary easements for the installation of said pole.

VII. STREETLIGHT REQUEST PROCEDURE

- a. Applicant completes a request form (Exhibit “A”) and submits to the Department of Public Works Engineering Division.
- b. Engineering Division informs approving authority of the request, and steps needed to complete the process.
- c. Engineering Division gathers information for Warranting Worksheet.
- d. Engineering draws Exhibits and forwards information to the City Engineer for review.
- e. After City Engineer Approves, Engineering Division requests that City Manager approve the installation of the streetlight and gives authorization to the appropriate franchise utility to install.
- f. The appropriate franchise utility reviews the streetlight request and conducts the installation (if approved) of the proposed streetlight within a designated time period.
- g. Engineering Division distributes confirmation letter to the applicant and approving authority giving an approximate date of installation.

VIII. LIGHTING PROBLEMS

All streetlights, poles, and wiring remain the property of the franchise utility. If the streetlight is not working properly, or are damaged please contact the appropriate franchise utility.

- a. Galveston County would be Texas New Mexico Power at (281) 996-0453.
- b. Harris County would be CenterPoint Energy at (713) 307-2222.

Please give the franchise utility the pole number (approximately six (6) feet above ground) facing the roadway. If one is not visible, get the address or distance from the nearest intersection.

If tree limbs are blocking the light, please call the Department of Public Works at (281) 996-3380.



City of Friendswood

Department of Public Works

Engineering Division

1306 Deepwood Drive
Friendswood, Texas 77546-4904

STREETLIGHT REQUEST FORM (FOR NEW STREETLIGHT INSTALLATION)

NOTE TO APPLICANT:

The City of Friendswood will consider approving the placement of a streetlight in a specific location if certain guidelines, conditions, and warrants are met.

Contact Information (to be completed by applicant)			
Name: _____		Email: _____	
Phone: _____		FAX: _____	
Street Address: _____			
City: _____		State: _____	Zip Code: _____
Request Information (to be completed by applicant)			
Location of Streetlight Request (i.e. pole #, intersection, address, other): _____			
Reason and Nature of Request: _____			
Please indicate how you prefer to be notified of the results of your application:			
Email _____	Phone _____	FAX _____	Mail _____

Signature of Applicant

Date of Submittal

DRAFT



FRIENDSWOOD CITY COUNCIL AGENDA ITEM FORM

This form should be completed and forwarded to the City Manager's Office as soon as possible prior to the first date that the item is expected to be placed on the Friendswood City Council agenda.

Date requested for City Council consideration: 02/04/2019

Date Submitted: 01/15/2019

Dept. Clearances: KRH

Prepared by: Katina Hampton

Subject: Utility Rate Adjustment

Originating Department: Admin Services

City Attorney Review: mkf

Proceeding: Ordinances – 2nd reading

Degree of importance: Critical ☐ Significant ☒ Elective ☐

Expenditure Required: \$0 Amount Budgeted: \$0

Appropriation Required: \$0 Source of Funds: N/A

FINANCE APPROVAL: *krh*

MK

Morad Kabiri
City Manager

SUMMARY / ORIGINATING CAUSE

In the work session on January 14, 2019, staff presented follow-up information and revisions to the recommended utility rates presented by Nelisa Heddin Consulting, LLC in December 2018.

The 1st reading of the ordinance prescribing the utility rates (spanning the next five years) was approved by City Council.

The proposed utility rates will ensure the City's ability to meet its annual requirements for operational costs, current debt service obligations and anticipated debt service needs to fund utility projects included in the City's capital improvements plan.

Please understand the rates are projections and will need annual review.

IMMINENT CONSEQUENCES / BENEFIT TO COMMUNITY

Approving the recommended rates will ensure adequate revenue for the City's utility operations, current debt service requirements and future debt service obligations needed to maintain and/or expand the City's utility infrastructure.

RECOMMENDATIONS

Staff recommends adoption of the ordinance and exhibit upon 2nd reading on the February 4th City Council meeting agenda.

The adjusted rates for fiscal year 2018 – 2019 will be effective on utility bills generated for utility consumption periods following February 4, 2019. The adjusted rates for subsequent fiscal years will be effective on utility bills generated for utility consumption period following 1/1/2020, 1/1/2021, 1/1/2022 and 1/1/2023.

ATTACHMENTS

[Ordinance 2019-01 Utility Rate Adjustment](#)

[Ordinance 2019-01 Exhibit A](#)

(Title: An Ordinance amending Appendix D of the Code of Ordinances of the City of Friendswood.)

ORDINANCE NO. T2019-01

**AN ORDINANCE OF THE CITY OF FRIENDSWOOD, TEXAS,
CITY COUNCIL, AMENDING APPENDIX D OF THE
FRIENDSWOOD CITY CODE TO ESTABLISH THE RATES TO
BE CHARGED BY THE CITY FOR WATER AND SEWER
UTILITY SERVICES FOR FISCAL YEARS 2019-2023.**

* * * * *

WHEREAS, Appendix D of the Code of Ordinances of the City of Friendswood, Texas establishes water and sewer rates for utility services provided by the City and

WHEREAS, in order to ensure the City's ability to meet its annual revenue requirements for utility operational costs, current debt service obligations and anticipated debt service needs to fund utility projects included in the City's capital improvements plan, the City Council deems it necessary to revise the City's fee schedule utilities section for fiscal years 2019 – 2023 as set forth in this ordinance.

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF FRIENDSWOOD, STATE OF TEXAS:

Section 1. City of Friendswood, Texas, Appendix D of the Friendswood City Code, and also being the fee schedule ordinance of the City, is hereby amended in accordance with the terms and conditions set out in the attached Exhibit "A".

Section 2. In the event any section, paragraph, subdivision, clause, phrase, provision, sentence, or part of this ordinance or the application of the same to any person or circumstance shall for any reason be adjudged invalid or held unconstitutional by a court of competent jurisdiction, it shall not affect, impair, or invalidate this Ordinance as a whole or any part or provision hereof other than the part declared to be invalid or unconstitutional; and the City Council of the City of Friendswood, Texas, declares that it would have passed each and every part of the same notwithstanding the omission of any such part thus declared to be invalid or unconstitutional, whether there be one or more parts.

PASSED AND APPROVED on first reading this 14th day of January, 2019.

PASSED, APPROVED, AND ADOPTED on second and final reading this 4th day of February, 2019.

Mike Foreman
Mayor

ATTEST:

Melinda Welsh, TRMC
City Secretary

City of Friendswood
Water & Wastewater Utility Rates Recommendation

WATER UTILITY RATES - REFLECTED ON BILLS WITH CONSUMPTION PERIODS AFTER 2/4/2019

Monthly Minimum Charge - Single Family Residential

Meter Size	2/4/19
Up to 1"	\$20.23
1 1/2"	\$40.74
2"	\$65.45
3"	\$89.00
4"	\$122.65
6"	\$206.76
8"	\$307.70

Volumetric Rates - Single Family Residential

Per 1,000 gallons	
0 - 3,000 gallons	\$0.00
3,001 - 10,000 gallons	\$2.90
10,001 - 25,000 gallons	\$3.63
Above 25,000 gallons	\$5.44

Monthly Minimum Charge - Commercial, Multi-unit (residential or commercial)

Meter Size	2/4/19
Up to 1"	\$20.23
1 1/2"	\$40.74
2"	\$65.45
3"	\$89.00
4"	\$122.65
6"	\$206.76
8"	\$307.70

Volumetric Rates - Commercial, Multi-unit (residential or commercial)

Per 1,000 gallons	\$4.66
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Monthly Minimum Charge - Irrigation/Sprinkler

Meter Size	2/4/19
Up to 1"	\$20.23
1 1/2"	\$40.74
2"	\$65.45
3"	\$89.00
4"	\$122.65
6"	\$206.76
8"	\$307.70

Volumetric Rates - Irrigation/Sprinkler

Per 1,000 gallons	2/4/19
0 - 3,000 gallons	\$0.00
3,001 - 10,000 gallons	\$4.00
10,001 - 25,000 gallons	\$4.25
Above 25,000 gallons	\$5.44

SEWER UTILITY RATES - REFLECTED ON BILLS WITH CONSUMPTION PERIODS AFTER 2/4/2019

Monthly Minimum Charge	2/4/19
Single Family Residential	\$23.00
Residential (multi-unit)	\$23.00
Commercial (single & multi-unit)	\$23.00

Volumetric Rates - Single Family Residential

Based on WMA**	2/4/19
Per 1,000 gallons	\$2.40

Volumetric Rates - Commercial (single), Multi-unit*(residential & commercial)

Based on 100% water consumption	2/4/19
Per 1,000 gallons	\$2.40

** Winter Months Average

City of Friendswood
Water & Wastewater Utility Rates Recommendation

WATER UTILITY RATES - REFLECTED ON BILLS WITH CONSUMPTION PERIODS AFTER 1/1/2020

Monthly Minimum Charge - Single Family Residential

Meter Size	1/1/20
Up to 1"	\$21.24
1 1/2"	\$53.58
2"	\$85.94
3"	\$133.05
4"	\$200.34
6"	\$368.58
8"	\$570.46

Volumetric Rates - Single Family Residential

Per 1,000 gallons	
0 - 3,000 gallons	\$0.00
3,001 - 10,000 gallons	\$3.21
10,001 - 25,000 gallons	\$4.01
Above 25,000 gallons	\$6.02

Monthly Minimum Charge - Commercial, Multi-unit (residential or commercial)

Meter Size	1/1/20
Up to 1"	\$21.24
1 1/2"	\$53.58
2"	\$85.94
3"	\$133.05
4"	\$200.34
6"	\$368.58
8"	\$570.46

Volumetric Rates - Commercial, Multi-unit (residential or commercial)

Per 1,000 gallons	\$4.90
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Monthly Minimum Charge - Irrigation/Sprinkler

Meter Size	1/1/20
Up to 1"	\$21.24
1 1/2"	\$53.58
2"	\$85.94
3"	\$133.05
4"	\$200.34
6"	\$368.58
8"	\$570.46

Volumetric Rates - Irrigation/Sprinkler

Per 1,000 gallons	1/1/20
0 - 3,000 gallons	\$0.00
3,001 - 10,000 gallons	\$4.00
10,001 - 25,000 gallons	\$4.25
Above 25,000 gallons	\$6.02

WATER UTILITY RATES - REFLECTED ON BILLS WITH CONSUMPTION PERIODS AFTER 1/1/2020

Monthly Minimum Charge	1/1/20
Single Family Residential	\$24.15
Residential (multi-unit)	\$24.15
Commercial (single & multi-unit)	\$24.15

Volumetric Rates - Single Family Residential

Based on WMA**	1/1/20
Per 1,000 gallons	\$4.16

Volumetric Rates - Commercial (single), Multi-unit*(residential & commercial)

Based on 100% water consumption	1/1/20
Per 1,000 gallons	\$4.16

** Winter Months Average

City of Friendswood
Water & Wastewater Utility Rates Recommendation

WATER UTILITY RATES - REFLECTED ON BILLS WITH CONSUMPTION PERIODS AFTER 1/1/2021

Monthly Minimum Charge - Single Family Residential

Meter Size	1/1/21
Up to 1"	\$21.65
1 1/2"	\$66.41
2"	\$106.44
3"	\$177.10
4"	\$278.04
6"	\$530.39
8"	\$833.21

Volumetric Rates - Single Family Residential

Per 1,000 gallons	
0 - 3,000 gallons	\$0.00
3,001 - 10,000 gallons	\$3.21
10,001 - 25,000 gallons	\$4.01
Above 25,000 gallons	\$6.02

Monthly Minimum Charge - Commercial, Multi-unit (residential or commercial)

Meter Size	1/1/21
Up to 1"	\$21.65
1 1/2"	\$66.41
2"	\$106.44
3"	\$177.10
4"	\$278.04
6"	\$530.39
8"	\$833.21

Volumetric Rates - Commercial, Multi-unit (residential or commercial)

Per 1,000 gallons	\$4.90
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Monthly Minimum Charge - Irrigation/Sprinkler

Meter Size	1/1/21
Up to 1"	\$21.65
1 1/2"	\$66.41
2"	\$106.44
3"	\$177.10
4"	\$278.04
6"	\$530.39
8"	\$833.21

Volumetric Rates - Irrigation/Sprinkler

Per 1,000 gallons	1/1/21
0 - 3,000 gallons	\$0.00
3,001 - 10,000 gallons	\$4.00
10,001 - 25,000 gallons	\$4.25
Above 25,000 gallons	\$6.02

WATER UTILITY RATES - REFLECTED ON BILLS WITH CONSUMPTION PERIODS AFTER 1/1/2021

Monthly Minimum Charge	1/1/21
Single Family Residential	\$25.36
Residential (multi-unit)	\$25.36
Commercial (single & multi-unit)	\$25.36

Volumetric Rates - Single Family Residential

Based on WMA**	1/1/21
Per 1,000 gallons	\$4.16

Volumetric Rates - Commercial (single), Multi-unit*(residential & commercial)

Based on 100% water consumption	1/1/21
Per 1,000 gallons	\$4.16

** Winter Months Average

City of Friendswood

Water & Wastewater Utility Rates Recommendation

WATER UTILITY RATES - REFLECTED ON BILLS WITH CONSUMPTION PERIODS AFTER 1/1/2022

Monthly Minimum Charge - Single Family Residential

Meter Size	1/1/22
Up to 1"	\$22.73
1 1/2"	\$79.25
2"	\$126.93
3"	\$221.15
4"	\$355.73
6"	\$692.20
8"	\$1,095.97

Volumetric Rates - Single Family Residential

Per 1,000 gallons	
0 - 3,000 gallons	\$0.00
3,001 - 10,000 gallons	\$3.21
10,001 - 25,000 gallons	\$4.01
Above 25,000 gallons	\$6.02

Monthly Minimum Charge - Commercial, Multi-unit (residential or commercial)

Meter Size	1/1/22
Up to 1"	\$22.73
1 1/2"	\$79.25
2"	\$126.93
3"	\$221.15
4"	\$355.73
6"	\$692.20
8"	\$1,095.97

Volumetric Rates - Commercial, Multi-unit (residential or commercial)

Per 1,000 gallons	\$4.90
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Monthly Minimum Charge - Irrigation/Sprinkler

Meter Size	1/1/22
Up to 1"	\$22.73
1 1/2"	\$79.25
2"	\$126.93
3"	\$221.15
4"	\$355.73
6"	\$692.20
8"	\$1,095.97

Volumetric Rates - Irrigation/Sprinkler

Per 1,000 gallons	1/1/22
0 - 3,000 gallons	\$0.00
3,001 - 10,000 gallons	\$4.00
10,001 - 25,000 gallons	\$4.25
Above 25,000 gallons	\$6.02

WATER UTILITY RATES - REFLECTED ON BILLS WITH CONSUMPTION PERIODS AFTER 1/1/2022

Monthly Minimum Charge	1/1/22
Single Family Residential	\$26.63
Residential (multi-unit)	\$26.63
Commercial (single & multi-unit)	\$26.63

Volumetric Rates - Single Family Residential

Based on WMA**	1/1/22
Per 1,000 gallons	\$4.16

Volumetric Rates - Commercial (single), Multi-unit*(residential & commercial)

Based on 100% water consumption	1/1/22
Per 1,000 gallons	\$4.16

** Winter Months Average

City of Friendswood

Water & Wastewater Utility Rates Recommendation

WATER UTILITY RATES - REFLECTED ON BILLS WITH CONSUMPTION PERIODS AFTER 1/1/2023

Monthly Minimum Charge - Single Family Residential

Meter Size	1/1/23
Up to 1"	\$23.55
1 1/2"	\$92.09
2"	\$147.43
3"	\$265.20
4"	\$433.43
6"	\$854.02
8"	\$1,358.72

Volumetric Rates - Single Family Residential

Per 1,000 gallons	
0 - 3,000 gallons	\$0.00
3,001 - 10,000 gallons	\$3.21
10,001 - 25,000 gallons	\$4.01
Above 25,000 gallons	\$6.02

Monthly Minimum Charge - Commercial, Multi-unit (residential or commercial)

Meter Size	1/1/23
Up to 1"	\$23.55
1 1/2"	\$92.09
2"	\$147.43
3"	\$265.20
4"	\$433.43
6"	\$854.02
8"	\$1,358.72

Volumetric Rates - Commercial, Multi-unit (residential or commercial)

Per 1,000 gallons	\$4.90
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Monthly Minimum Charge - Irrigation/Sprinkler

Meter Size	1/1/23
Up to 1"	\$23.55
1 1/2"	\$92.09
2"	\$147.43
3"	\$265.20
4"	\$433.43
6"	\$854.02
8"	\$1,358.72

Volumetric Rates - Irrigation/Sprinkler

Per 1,000 gallons	1/1/23
0 - 3,000 gallons	\$0.00
3,001 - 10,000 gallons	\$4.00
10,001 - 25,000 gallons	\$4.25
Above 25,000 gallons	\$6.02

WATER UTILITY RATES - REFLECTED ON BILLS WITH CONSUMPTION PERIODS AFTER 1/1/2023

Monthly Minimum Charge	1/1/23
Single Family Residential	\$27.96
Residential (multi-unit)	\$27.96
Commercial (single & multi-unit)	\$27.96

Volumetric Rates - Single Family Residential

Based on WMA**	1/1/23
Per 1,000 gallons	\$4.29

Volumetric Rates - Commercial (single), Multi-unit*(residential & commercial)

Based on 100% water consumption	1/1/23
Per 1,000 gallons	\$4.29

** Winter Months Average



FRIENDSWOOD CITY COUNCIL AGENDA ITEM FORM

This form should be completed and forwarded to the City Manager's Office as soon as possible prior to the first date that the item is expected to be placed on the Friendswood City Council agenda.

Date requested for City Council consideration: February 4, 2019

Date Submitted: January 30, 2019

Dept. Clearances: P Donart

Prepared by: P Donart

Subject: 2018 Update Study of Land Use Assumptions, Capital Improvements Plan & Impact Fees

Originating Department: PW

City Attorney Review: Yes

Proceeding: Ordinances-Second Reading

Degree of importance: Critical ☐ Significant ☒ Elective ☐

Expenditure Required: Amount Budgeted:

Appropriation Required: Source of Funds:

FINANCE APPROVAL: N/A

MK

Morad Kabiri
City Manager

SUMMARY / ORIGINATING CAUSE

Impact fees are capital recovery fees used to expand the water and sewer systems to accommodate new growth. In order to assess an impact fee, a City must use land use assumptions to determine population growth and provide details on specific capital improvement projects that will be funded with the fees collected.

The impact fees are paid at the time of building permit issuance and are based on meter size. The City first began charging impact fees in 1990. Chapter 395 of the Local Government Code requires an updated study every five years. The last update was in 2013.

The City hired Daniel Scott Engineering, LLC to update the study for 2018. The draft of the study is provided in the back-up material. As the Capital Improvement Advisory Committee (CAIC), the commission has provided a written report as their recommendation which is included with this agenda item as backup material.

IMMINENT CONSEQUENCES / BENEFIT TO COMMUNITY

Changing the amount of the impact fees affects the fees that developers are required to pay for new development; however, the funds that are collected go towards expansion of the City's water and sewer system to accommodate for the growth.

RECOMMENDATIONS

The recommended fee in the study are as follows:

\$1,407 – water \$2,820

-sewer

\$4,227 – total for one-inch meter

ATTACHMENTS

[Ordinance](#)

[Exhibit A](#)

[Exhibit B](#)

(Title: An ordinance approving the amendments to the land use assumptions, the capital improvements plan, the imposition of impact fees and amending Section 74-52(d) and Appendix D.)

ORDINANCE NO. 2019-02

AN ORDINANCE AMENDING AND UPDATING LAND USE ASSUMPTIONS AND CAPITAL IMPROVEMENTS PLAN AND IMPOSITION OF IMPACT FEES PURSUANT TO THE TEXAS LOCAL GOVERNMENT CODE ANNOTATED, § 395.001 ET. SEQ.; AMENDING THE FRIENDSWOOD CITY CODE, CHAPTER 74 "TAXATION", ARTICLE III, IMPACT FEES, SECTION 74-52(D) AND APPENDIX D TO INCLUDE UPDATED IMPACT FEE AMOUNTS; PROVIDING A PENALTY IN AN AMOUNT NOT TO EXCEED \$500 FOR VIOLATION OF ANY PROVISIONS HEREOF BY INCLUSION IN THE CODE OF ORDINANCES; REPEALING ALL ORDINANCES OR PARTS OF ORDINANCES INCONSISTENT OR IN CONFLICT HERewith; PROVIDING FOR SEVERABILITY; AND PROVIDING FOR PUBLICATION AND EFFECTIVE DATE.

* * * * *

WHEREAS, by virtue of Vernon's Texas Codes Annotated, Local Government Code, Chapter 395 ("State Law"), the City Council has found it necessary and appropriate to revise the City's capital improvements plan and update impact fees to comply with the provisions of said State Law; and

WHEREAS, the City Council has employed qualified professionals to revise the capital improvements plan and calculate updated impact fees, and has held a public hearing, as required by State Law, at which hearing all persons desiring to be heard were heard; and

WHEREAS, the City of Friendswood first adopted Impact Fees for New Construction in 1990 in accordance with applicable law; and

WHEREAS, Section 395.052 of the Texas Local Government Code requires that the land use assumptions and capital improvement plan for which an impact fee is imposed shall be reviewed, evaluated, and updated at least every five years; and

WHEREAS, in accordance with the provisions of Chapter 395 of the Texas Local Government Code, “Financing Capital Improvements Required by New Development in Municipalities, Counties, and Certain other Local Governments – Subchapter C. Procedures for Adoption of Impact Fee,” Sections 395.052 and 395.058, the City Council of the City of Friendswood appointed the Planning and Zoning Commission to act as the Capital Improvements Advisory Committee, (Committee), for the purpose of updating the land use assumptions, capital improvements, and impact fees and determined that the appointment of such Committee complied in all respects to the provisions of law; and

WHEREAS, the Committee has filed its written comments on the proposed amendments to the land use assumptions, capital improvements plan, and impact fees as required by law, before the fifth business day before the date of the public hearing, for which notice was properly provided by the Friendswood City Council within 60 days after the date it received the update of the land use assumptions and capital improvements plan, in accordance with sections 395.053 and 395.056 of the Texas Local Government Code; and

WHEREAS, the City Council has completed an Impact Fee Analysis on which to base the recommended amendment of fees and has caused to be prepared a new Capital Improvements Plan and Land Use Assumptions; and

WHEREAS, the City of Friendswood has met all of the legal requirements and prerequisites for implementation of impact fees in accordance with Chapter 395 of the Texas Local Government Code; and

WHEREAS, the City Council of the City of Friendswood finds and determines its legislative intent to enable the provisions of Chapter 395 of the Texas Local Government Code and has determined to approve the amendments to the Impact Fees within 30 days after the date of the public hearings on the subject amendments in compliance with section 395.057; and

WHEREAS, this Ordinance is intended to and satisfies the statutory requirements for adoption of amendments to the land use assumptions and the capital improvements plan and modification and implementation of impact fees.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF FRIENDSWOOD, STATE OF TEXAS:

Section 1. That the City Council of the City of Friendswood adopts the preceding preamble paragraphs as if repeated verbatim herein and find them to be true and correct facts.

Section 2. The Impact Fee Study, updating land use assumptions, capital improvements plan and impact fees included in a study by Daniel S. Johnson with Daniel Scott Engineering, LLC, entitled “2018 Update Study for Land Use Assumptions, Capital Improvements Plan and Impact Fees, Water Supply / Distribution and Wastewater Treatment / Collection” is attached hereto as Exhibit “A” and incorporated for all purposes.

Section 3. The “2018 Update Study for Land Use Assumptions, Capital Improvements Plan and Impact Fees Water Supply / Distribution and Wastewater Treatment / Collection” by Daniel S. Johnson with Daniel Scott Engineering, LLC, as shown in Exhibit “A” which was prepared as part of the Impact Fee Study, is hereby adopted and made a part of this Ordinance, and the Impact Fees set forth therein are hereby levied against new development on lands located within the corporate boundaries of the City of Friendswood and in compliance with Friendswood City Code, Chapter 74, Taxation, Article III. Impact Fees, Sections 74-50 through 74-52. Pursuant

to Exhibit “A”, the Water Impact Fee is \$1,407 per equivalent service unit, and the Wastewater Impact Fee is \$2,820 per equivalent service unit. The Total Impact fee for Water and Wastewater is \$4,227 per equivalent service unit.

Section 4. The Friendswood City Code, Chapter 74 "Taxation", Article III, Impact Fees, Section 74-52 (d) is hereby amended to read as follows:

(d) *Fees.* The Water Impact Fee is \$1,407 per equivalent service unit.

The Wastewater Impact Fee is \$2,820 per equivalent service unit.

Total Impact Fees charged for Water and Wastewater are \$4,227 per equivalent service unit.

<u>Meter size and Type</u>		Equivalent Service Units
1"	simple	1
1 ½"	simple	2
2"	simple	3
3"	compound	6
4"	compound	10
6"	compound	20
8"	compound	32
10"	compound	46
12"	compound	86

[1" meter is the smallest acceptable meter. In any situation where a meter smaller than 1" is installed, the 1" fee will be charged].

Section 5. The Friendswood City Code, Appendix D, also being the fee schedule ordinance of the City, is hereby amended by changing “Utilities (5) City-wide impact fees” to read as follows:

“Utilities

(5) City-wide impact fees:

Code Section 74-52

(a) Water impact fees

\$1,407

74-52 (d)

(b) Wastewater impact fees

\$2,820

74-52 (d)

Total Impact Fees charged for Water and Wastewater are \$4,227 per equivalent service unit.”

The Impact Fee Chart attached as Exhibit “B” incorporated herein and made a part hereof for all purposes, calculates the water and wastewater impact fees charged for meter sizes ranging from 1” to 12”, based on the water and wastewater impact fees adopted in this Ordinance.

Section 6. Any person who shall violate any provision of this Ordinance shall be deemed guilty of a misdemeanor and, upon conviction, shall be fined in an amount not more than

Five Hundred Dollars (\$500.00) per offense, or the maximum amount provided by law. Each day of violation shall constitute a separate offense.

Section 7. All ordinances or parts of ordinances or resolutions inconsistent or in conflict herewith are, to the extent of such inconsistency or conflict, hereby repealed but only to the extent of such conflict.

Section 8. In the event any clause, phrase, provision, sentence, or any part of this Ordinance or the application of the same to any person or circumstances shall for any reason be adjudged invalid or held unconstitutional by a court of competent jurisdiction, it shall not affect, impair, or invalidate this Ordinance as a whole or any part or provision hereof other than the part declared to be invalid or unconstitutional; and the City Council of the City of Friendswood, Texas, declares that it would have passed each and every part of the same notwithstanding the omission of any such part thus declared to be invalid or unconstitutional, whether there be one or more parts.

Section 9. It is the intent of the City Council of the City of Friendswood, Texas, that the provisions of this Ordinance shall be codified in the City's official Code of Ordinances as provided hereinabove.

Section 10. All rights and remedies which have accrued in favor of the City under this Chapter and amendments thereto shall be and are preserved for the benefit of the City.

Section 11. The City Secretary shall give notice of the enactment of this Ordinance by promptly publishing its descriptive caption and penalty after final passage in the official newspaper of the City, and the Ordinance shall take effect upon publication.

PASSED AND APPROVED on first reading this 14th day of January, 2019.

PASSED, APPROVED, AND ADOPTED on second and final reading this 4th day of February, 2019.

Mike Foreman
Mayor

ATTEST:

Melinda Welsh, TRMC
City Secretary

EXHIBIT "A"

2018 UPDATE STUDY OF LAND USE ASSUMPTIONS,
CAPITAL IMPROVEMENTS PLAN and IMPACT FEES



IMPACT FEE STUDY

2018 UPDATE STUDY OF LAND USE ASSUMPTIONS,
CAPITAL IMPROVEMENTS PLAN & IMPACT FEES

WATER SUPPLY/DISTRIBUTION AND
WASTEWATER TREATMENT/COLLECTION

CITY OF FRIENDSWOOD, TEXAS



NOVEMBER 2018

PREPARED BY:

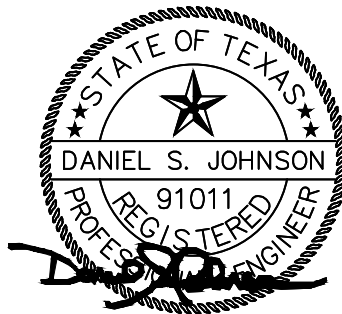
DANIEL SCOTT
ENGINEERING, LLC

19701 MORRIS AVENUE, MANVEL, TEXAS 77578
TBPE F-9827

CITY OF FRIENDSWOOD
IMPACT FEE STUDY

CAPITAL IMPROVEMENTS ADVISORY COMMITTEE

JOE MATRANGA
RICHARD CLARK
BRETT BANFIELD
ERIC GUENTHER
LISA LUNDQUIST
RICHARD SASSON
MARCUS PERRY



11/27/2018

CITY OF FRIENDSWOOD
IMPACT FEE STUDY

TABLE OF CONTENTS

I.	INTRODUCTION	5
A.	BACKGROUND	5
B.	CAPITAL IMPROVEMENTS ADVISORY COMMITTEE	6
C.	PLANNING PERIOD	6
D.	CAPITAL IMPROVEMENTS	6
E.	IMPACT FEES	6
II.	LAND USE ASSUMPTIONS	7
A.	BASIS	7
B.	SERVICE AREA	7
C.	POPULATION PROJECTIONS	8
D.	GROWTH RATE	10
III.	CAPITAL IMPROVEMENTS PLAN	11
A.	CAPITAL IMPROVEMENTS PROGRAM	11
B.	EXISTING CAPITAL IMPROVEMENTS	12
	1. WATER SUPPLY AND DISTRIBUTION	12
	2. WASTEWATER COLLECTION AND TREATMENT	13
C.	PROJECTS	14
D.	PROJECT DESCRIPTIONS	15
E.	EQUIVALENT SERVICE UNITS	17
IV.	IMPACT FEES	22
A.	ADMINISTRATIVE ITEMS	22
B.	MAXIMUM IMPACT FEE DETERMINATION	23
V.	SUMMARY AND RECOMMENDATIONS	24

CITY OF FRIENDSWOOD
IMPACT FEE STUDY

LIST OF TABLES

1.	IMPACT FEE STUDY UPDATE SUMMARY	5
2.	US CENSUS BUREAU	8
3.	HGAC POPULATION PROJECTIONS	9
4.	1.5% ANNUAL GROWTH RATE PROJECTIONS	10
5.	WATER PROJECTS FOR EXISTING NEEDS	12
6.	WASTEWATER PROJECTS FOR EXISTING NEEDS	13
7.	CAPITAL IMPROVEMENTS PLAN	14
8.	EQUIVALENT METER TABLE	17
9.	CURRENT RESIDENTIAL METER SUMMARY	18
10.	CURRENT NON-RESIDENTIAL METER SUMMARY	19
11.	CURRENT WATER METER SUMMARY	20
12.	EQUIVALENT SERVICE UNITS	21
13.	MAXIMUM IMPACT FEES	23
14.	PREVIOUS IMPACT FEES	24

CITY OF FRIENDSWOOD
IMPACT FEE STUDY

I. INTRODUCTION

A. BACKGROUND

The City of Friendswood, Texas has elected to adopt Water and Wastewater Impact Fees to assist in the financing of Capital Improvements for those systems that are necessitated by growth and development anticipated in the City. These Impact Fees were first adopted on June 4, 1990 by Resolution No. 90-22, in accordance with the provisions of the, then current State Law.

The State Law originally required that impact fees be reviewed and updated at least every three years from the adoption date; however, the legislation was amended to revise the maximum period to five years between required updates. Table 1 provides a historical summary of all updates to the Impact Fee Study for the City of Friendswood:

TABLE 1
IMPACT FEE STUDY UPDATE SUMMARY

Year	Revision	Resolution	Preparer
1990	Original	R90-22	Brown & Gay Engineers, Inc.
1991	Amendment	R91-4	Brown & Gay Engineers, Inc.
1993	Update #1	R93-24	Brown & Gay Engineers, Inc.
1997	Update #2	R97-48	Claunch & Miller, Inc.
2000	Update #3	R2000-40	Claunch & Miller, Inc.
2003	Update #4	R2003-47	Claunch & Miller, Inc.
2008	Update #5	R2008-17	HDR/Claunch & Miller, Inc.
2013	Update #6	R2013-11	JET Civil Consulting, LLC
2018	Update #7		Daniel Scott Engineering, LLC

In 2013, the City Council authorized JET Civil Consulting, LLC to prepare the update of the Land Use Assumptions, Capital Improvements Plan (CIP), and Impact Fee Study in accordance with Chapter 395 of the Local Government Code (Impact Fee Legislation), which is the state legislation regulating this adoption process.

In July 2018, the City authorized Daniel Scott Engineering, LLC (DSE) to prepare the required five-year update of the 2013 Study. This document includes the basis for determination of the Water and Wastewater Impact Fee per Equivalent Service Unit (ESU), based on Land Use Assumptions and the corresponding CIP.

CITY OF FRIENDSWOOD
IMPACT FEE STUDY

B. CAPITAL IMPROVEMENTS ADVISORY COMMITTEE

The City Council has appointed a Capital Improvements Advisory Committee to give policy direction, guide the public hearing process, and make a recommendation to the Council regarding the final report and fee amount. This committee consists of the Friendswood Planning and Zoning Commission (P&Z), which currently has at least one member representing the real estate industry, as required by the Impact Fee Legislation.

C. PLANNING PERIOD

The City of Friendswood is located in a high growth corridor along Interstate 45, approximately 20 miles southeast of the City of Houston, and about 30 miles northwest of the City of Galveston. The planning period for this Impact Fee Study will be for the ten-year period from 2018-2028 in accordance with requirements of the aforementioned Chapter 395. Population projections and resulting growth for the planning period can be found in the Land Use Assumptions, and details of the projects are shown in the CIP.

D. CAPITAL IMPROVEMENTS

Water and Wastewater Capital Improvements are defined as *“any facility that has a life expectancy of three or more years and are owned and operated by or on behalf of a political subdivision: water supply, treatment and distribution facilities; wastewater collection and treatment facilities.”*

Costs for system improvements necessitated by regulatory changes, maintenance requirements, or to correct deficiencies in existing developed areas are not eligible for reimbursement by impact fees and are therefore not included in the CIP developed for the purposes of this study. Many of the improvements may be financed through the issuance of bonds, and therefore finance charges can be estimated and included in the fee calculation. Acquisition of land, easements, and engineering costs for the projects are also eligible under the legislation and can be included in the calculation.

E. IMPACT FEES

This document will establish the projected number of Equivalent Service Units estimated to be added to the City of Friendswood’s water and wastewater system over the Planning Period, as well as the anticipated areas, which will require these services. The required Capital Improvements to be constructed can then be determined with cost estimates that will be utilized to calculate the proposed Impact Fees.

CITY OF FRIENDSWOOD
IMPACT FEE STUDY

II. LAND USE ASSUMPTIONS

A. BASIS

The Land Use Assumptions established herein are based on the following:

- The City's current Zoning Map
- The City's Capital Improvements Program 2017 Update
- The City's Comprehensive Plan adopted in 1998
- Vision 2020
- 2001 Groundwater Reduction Plan
- Area Growth projections provided by HGAC and other sources
- United States Census Bureau data and previous historical data
- Current growth trends experienced in the City
- Availability of vacant tracts in the City

B. SERVICE AREA

The Impact Fee Legislation defines Land Use Assumptions as: *"a description of the service area and projections of changes in land uses, densities, intensities and population in the service area over at least a ten-year period."* The City of Friendswood has elected to define the service area for Impact Fees as the current City Limits. The legislation also allows the City to impose impact fees in the City's Extraterritorial Jurisdiction (ETJ); however, the City of Friendswood has no ETJ.

The City has elected to establish Impact Fees on a system-wide basis. Currently, the City has no standalone systems (Municipal Utility Districts) providing water and wastewater to residents and businesses.

CITY OF FRIENDSWOOD
IMPACT FEE STUDY

C. POPULATION PROJECTIONS

According to the United States Census Bureau (Table 2), the population for the City of Friendswood was estimated at 39,839 on July 1, 2017. This represents an increase of 11.3% from the 2010 Official Census (35,805), and an increase of 4,034 people in seven years. After the increase of 23.3% (6,768 people) from 2000 (29,037) to 2010 (35,805), the Census Bureau continues to document Friendswood's growth toward buildout.

Over the last 47 years of Census data, the City of Friendswood has experienced varying population increases. The City witnessed tremendous population spikes of 88.9% from 1970 to 1980, and 112.8% from 1980 to 1990, and a steady increase of about 6,300 people every decade since the 1990's. Altogether, the City has experienced an average annual population increase of 4.27% since 1970.

The 2013 Impact Fee Study incorporated an average annual increase of 1.5% for the population projection, which proved to be consistent with the 1.54% increase observed by the Census Bureau.

TABLE 2
US CENSUS BUREAU

Geography Name	Year	Household Population	% Increase	Population Increase
Friendswood	1970	5,675		
Friendswood	1980	10,719	88.9%	5,044
Friendswood	1990	22,814	112.8%	12,095
Friendswood	2000	29,037	27.3%	6,223
Friendswood	2010	35,805	23.3%	6,768
Friendswood	2017	39,839	11.3%	4,034
		ANNUAL AVERAGE		
		SINCE 1970:	4.27%	726.9
		SINCE 1980:	3.62%	787.0
		SINCE 1990:	2.09%	630.6
		SINCE 2000:	1.88%	635.4
		SINCE 2010:	1.54%	576.3

CITY OF FRIENDSWOOD
IMPACT FEE STUDY

The City's Comprehensive Plan, Vision 2020, and the Groundwater Reduction Plan projected a build-out population of 57,400 within the combined 21 square miles of the City. Growth trends for the current decade are on a similar track with Houston Galveston Area Council (HGAC) projecting a population increase of 9,147 by 2028. The HGAC population projections for the 10-Year Planning Period are presented in Table 3.

TABLE 3
HGAC POPULATION PROJECTIONS

Place	Year	Household Population	% Increase	Population Increase
Friendswood	2015	38,435	-	-
Friendswood	2016	39,066	-	-
Friendswood	2017	39,697	-	-
Friendswood	2018	40,327	-	-
Friendswood	2019	40,958	1.6%	630.8
Friendswood	2020	41,589	1.5%	630.8
Friendswood	2021	42,853	3.0%	1,263.8
Friendswood	2022	44,117	2.9%	1,263.8
Friendswood	2023	45,380	2.9%	1,263.8
Friendswood	2024	46,644	2.8%	1,263.8
Friendswood	2025	47,908	2.7%	1,263.8
Friendswood	2026	48,430	1.1%	522.1
Friendswood	2027	48,952	1.1%	522.1
Friendswood	2028	49,474	1.1%	522.1
		ANNUAL AVERAGE: TOTAL:	2.1%	9,147

CITY OF FRIENDSWOOD
IMPACT FEE STUDY

D. GROWTH RATE

According to the Census Bureau, the City of Friendswood has experienced an average growth rate of 1.54% per year over the last seven years. In turn, HGAC projects the City's average annual growth rate at 2.1% over the next ten years.

The 2008 Impact Fee Study used a 1.9% annual growth rate, which projected a population in 2017 of 42,988. The 2013 Impact Fee Study implemented a slightly more conservative rate of 1.5% and estimated a population in 2017 of 41,144. According to the US Census Bureau, Friendswood's 2017 population was actually estimated at 39,839, which is on target with the 2013 projection. Therefore, the recommendation of this 2018 Updated Study is to maintain the same conservative growth rate for the planning period between 2018 and 2028 at **1.5%**.

This 1.5% Growth Rate is recommended for the projection of population and resulting service units for the calculation of the Impact Fee amount. Table 4 indicates the resulting population projections by year, with a total estimated population growth of **6,492** over the next 10 years.

TABLE 4
1.5% ANNUAL GROWTH RATE PROJECTIONS

Source	Year	Household Population	% Increase	Population Increase
<i>US Census Data</i>	<i>2000</i>	<i>29,037</i>		
	<i>2010</i>	<i>35,805</i>	<i>23.3%</i>	<i>6,768</i>
	<i>2017</i>	<i>39,839</i>	<i>11.3%</i>	<i>4,034</i>
Friendswood	2018	40,436		
Friendswood	2019	41,043		607
Friendswood	2020	41,659		616
Friendswood	2021	42,284		625
Friendswood	2022	42,918		634
Friendswood	2023	43,562		644
Friendswood	2024	44,215		653
Friendswood	2025	44,878		663
Friendswood	2026	45,552		673
Friendswood	2027	46,235		683
Friendswood	2028	46,928		694
		AVERAGE: TOTAL:	1.5%	6,492

CITY OF FRIENDSWOOD
IMPACT FEE STUDY

III. CAPITAL IMPROVEMENTS PLAN

A. CAPITAL IMPROVEMENTS PROGRAM

Pursuant to the City Charter, the City Manager is required to submit a Capital Improvements Program (PROGRAM) to the City Council. By agreement, this program is to be updated periodically to reflect the completion of projects, the addition of new projects, and to update project costs for financial projection and management efforts. The first PROGRAM was adopted in 1999 and has been updated in 2003, 2007, 2009, 2012, 2014, and 2017.

From the 2017 Update: *“The intent of the updated program is to identify, describe, and prioritize the infrastructure needs of the community as it grows and evolves. The overall goal of the CIP is to maintain the same high quality of life for all citizens through the timely anticipation of the City’s needs, planning of improvement projects and determining funding sources as the community grows. The program is also intended to depict financial challenges of the City’s growth and maintenance of infrastructure that characterize the City’s future and the associated funding requirements to meet these objectives. The programming portion includes formulating preliminary plans, projecting estimated project costs, setting priorities, identifying funding sources, and scheduling the implementation of the plans.”*

The City of Friendswood adopted their current Capital Improvement Projects Manual in May of 2017 by Resolution R2017-13. This Manual proposed 77 projects for water, wastewater, facilities, drainage, parks, and streets. Within those 77 projects, 7 water and 10 wastewater projects were identified for the next 5 years (2017-2021). Additionally, 23 water and wastewater projects were identified in the “Beyond 5 Year Plan.”

Since the planning period for the Impact Fee adoption process is *10 years*, all of the *eligible* water and wastewater projects from the Capital Improvements Program are included, as well as other projects anticipated within the 10-year range.

CITY OF FRIENDSWOOD
IMPACT FEE STUDY

B. EXISTING CAPITAL IMPROVEMENTS

1. WATER SUPPLY AND DISTRIBUTION

Historically, water supply for the City of Friendswood was served exclusively by groundwater. However, in 1975, the Harris-Galveston Subsidence District (HGSD) was created by the Texas Legislature for the purpose of preventing land subsidence and increased flooding. Under HGSD's requirements, it was determined that the City's future water supply must be converted from a majority of groundwater use to a majority of surface water use.

In January 2001, a Groundwater Reduction Plan (GRP) was developed by Klotz Associates, Inc. in order to meet the HGSD requirements. The GRP indicated that the total water supply needed for the anticipated buildout population of 57,400 would be 16.8 million gallons per day (MGD):

$$57,400 \times 136 \text{ gallons per person per day} \times 2.16 \text{ peaking factor} = 16.8 \text{ MGD}$$

Further, it determined that, in order to meet groundwater reduction goals, the appropriate mix should be 11.8 MGD surface water and 5.0 MGD groundwater. As such, the City of Friendswood has diligently purchased 12.0 MGD of water treatment capacity from the City of Houston's Southeast Water Purification Plant, La Porte Water Authority, and MUD 55.

As described in the PROGRAM, there are six (6) water projects that will be needed in the next 5 years in order to upgrade, update, and improve the existing Capital Improvements to meet the existing needs of the City. Although these projects cannot be used in the Impact Fee calculation, their inclusion in this Study is a requirement of Section 395.014 (a) (1) and (2) of the Impact Fee Legislation:

TABLE 5
WATER PROJECTS FOR EXISTING NEEDS

<u>WATER PROJECTS</u>	<u>APPROXIMATE COST</u>
1. City of Houston Water Plant Rehabilitation	\$ 3,500,000
2. Water Plant #1 Rehabilitation	\$ 1,339,000
3. 42" Water Main Replacement	\$ 12,656,000
4. Elevated Storage Tank #2 Rehabilitation	\$ 1,059,000
5. Water Plant Tank #3 Rehabilitation	\$ 706,000
6. Water Plant Tank #4 Rehabilitation	\$ 706,000
SUBTOTAL WATER	\$ 19,966,000

CITY OF FRIENDSWOOD
IMPACT FEE STUDY

2. WASTEWATER COLLECTION AND TREATMENT

Since 1979, the City of Friendswood has purchased 4.875 MGD of the 9.25 MGD capacity in the Blackhawk Regional Wastewater Treatment Facility. Of the City's total capacity, 2.5 MGD was purchased in the Phase I construction to serve existing development. An additional 2.375 MGD was purchased in the Phase II expansion project to serve new development and has previously been subject to the impact fee.

In order to serve the anticipated buildout population of 57,400 people, a total capacity of 6.5 MGD will be needed:

$$\begin{aligned} 57,400 \text{ people} / 2.8 \text{ people per connection} &= 20,500 \text{ connections} \\ 20,500 \text{ connections} \times 315 \text{ gallons per connection} &= 6.5 \text{ MGD} \end{aligned}$$

Therefore, a 2.0 MGD Phase III expansion is anticipated to serve new development and was included in the 2013 impact fee calculation. Additionally, the PROGRAM identified 10 wastewater projects needed in the next 5 years in order to upgrade, update, and improve the existing Capital Improvements to meet the existing needs of the City. Although these projects cannot be used in the Impact Fee calculation, their inclusion in this Study is a requirement of Section 395.014 (a) (1) and (2) of the Impact Fee Legislation:

TABLE 6
WASTEWATER PROJECTS FOR EXISTING NEEDS

WASTEWATER PROJECTS	APPROXIMATE COST
1. Lift Station #1 Replacement	\$ 1,774,000
2. Lift Station #4 Replacement	\$ 1,774,000
3. Lift Station #17 Replacement	\$ 1,774,000
4. Lift Station #22 Replacement	\$ 2,637,000
5. Lift Station #23 Replacement	\$ 3,935,000
6. Sanitary Sewer System Assessment Phase 4	\$ 1,464,000
7. Sanitary Sewer System Assessment Phase 5	\$ 100,000
8. Sanitary Sewer System Assessment Phase 6	\$ 100,000
9. Sanitary Sewer System Assessment Phase 7	\$ 175,000
10. Sanitary Sewer System Assessment Phase 8	\$ 1,830,000
SUBTOTAL WASTEWATER	\$ 15,563,000

CITY OF FRIENDSWOOD
IMPACT FEE STUDY

C. PROJECTS

As discussed, the City's Capital Improvements Program (PROGRAM) identified 77 projects for water, wastewater, facilities, drainage, parks, and streets. The Capital Improvements Plan (CIP) contained within this 2018 Updated Impact Fee Study document consists of only *eligible* water and wastewater projects from the City's PROGRAM.

Four (4) water projects and five (5) wastewater projects were identified within the PROGRAM for this CIP and are included in Table 7. The approximate subtotal costs are \$6.8M for the water projects and \$13.7M for the wastewater projects.

TABLE 7
CAPITAL IMPROVEMENTS PLAN

<u>WATER PROJECTS</u>	<u>APPROXIMATE COST</u>
1. Sixteen Inch Waterline Phase III	\$ 2,500,000
2. Beamer Road Waterline	\$ 2,043,000
3. East Waterline	\$ 1,354,000
4. South Friendswood Service Area Loop	\$ 955,000
SUBTOTAL WATER	\$ 6,852,000
<u>WASTEWATER PROJECTS</u>	<u>APPROXIMATE COST</u>
1. Beamer Road Sanitary Sewer	\$ 4,200,000
2. El Dorado/Lundy Lane Sanitary Sewer	\$ 3,880,000
3. FM 528 – Falcon Ridge to Windsong Sanitary Sewer	\$ 1,005,000
4. FM 528 – Lundy Lane to Tower Estates Sanitary Sewer	\$ 1,585,000
5. Windsong Sanitary Sewer	\$ 3,061,000
SUBTOTAL WASTEWATER	\$ 13,731,000

CITY OF FRIENDSWOOD
IMPACT FEE STUDY

D. PROJECT DESCRIPTIONS

Project descriptions for the four (4) water projects and five (5) wastewater projects contained within this CIP were also included within the PROGRAM, and are provided below per the requirement of Section 395.014 (a) (3) of the Impact Fee Legislation:

Water Project #1: Sixteen Inch Waterline Phase III \$ 2,500,000

The proposed improvements would extend waterlines west from Water Plant #4 connecting to existing City waterlines in the western reaches of the City Limits. Currently, limited unlooped waterlines service various developments throughout the western region of Friendswood. This proposed water line loop would open up development opportunities along FM 528 and greatly improve water pressure.

Water Project #2: Beamer Road Waterline \$ 2,043,000

This project consists of the proposed installation of a twelve-inch waterline along Beamer Road from FM2351 to Dixie Farm Road. The proposed improvements will expand those installed in the 2010 Beamer Road utility project funded with U.S. Economic Development Administration Grant. Efforts to attract light industry and office warehouse business and development into this area are largely dependent on availability of City service infrastructure.

Water Project #3: East Waterline \$ 1,354,000

This project consists of the installation of approximately 2,850 linear feet of fourteen-inch waterline that would extend water service to the East Service Area, and then loop the line back into the existing system by installing 6,600 linear feet of twelve-inch waterline to Bay Area Boulevard. This project will provide water to the eastern most area of the City and loop the FM 528 line to the Bay Area Boulevard line.

Water Project #4: South Friendswood Service Area Loop \$ 955,000

This project would extend waterlines to existing City water-lines in the southern reaches of the City Limits. Currently, limited unlooped water lines service various developments throughout the southern region of Friendswood. The proposed water line loop would open up development opportunities along FM 528.

CITY OF FRIENDSWOOD IMPACT FEE STUDY

Wastewater Project #1:	Beamer Road Sanitary Sewer	\$ 4,200,000
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This project consists of the proposed installation of additional gravity sewer lines along Beamer Road toward Dixie Farm. The proposed improvements will expand those installed in the 2010 Beamer Road utility project funded with U.S. Economic Development Administration Grant. Efforts to attract light industry and office warehouse business and development into this area are largely dependent on availability of City service infrastructure.

Wastewater Project #2:	El Dorado/Lundy Lane Sanitary Sewer	\$ 3,880,000
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This project will include approximately 2,500 feet of six-inch force main, 5,000 feet of twelve-inch gravity sewer, 1,500 feet of fifteen-inch gravity sewer, and twenty manholes. The lift station will be located in the vicinity of the intersection of Lundy Lane and El Dorado Lane. Easements must be obtained for construction and installation of the Lift Station. Currently this area consists of 36 large lots and large acreage tracts, and is served by individual septic systems.

Wastewater Project #3:	\$ 1,005,000
FM528 - Falcon Ridge to Windsong Sanitary Sewer	

The purpose of this project is to provide sanitary sewer to the non-served area along FM 528 from Falcon Ridge to Windsong. The project will require construction of a Lift Station, approximately 5,700 feet of eight-inch force main, 4,800 feet of ten-inch gravity line and fourteen manholes. Easements must be obtained for construction and installation of the force main.

Wastewater Project #4:	\$ 1,585,000
FM528 – Lundy Lane to Tower Estates Sanitary Sewer	

The construction of a new sanitary sewer is required to provide services to the currently non-serviced areas along FM 528 from Lundy Lane to Tower Estates. The project will consist of approximately 3,000 feet of ten-inch gravity line, 800 feet of eight-inch line, and ten manholes.

Wastewater Project #5:	Windsong Sanitary Sewer	\$ 3,061,000
------------------------	-------------------------	--------------

This project will provide sanitary sewer to the non-served area on Windsong to FM 528. The project will also include the Wind Creek and Windwood Lane areas. This project will consist of the construction of a Lift Station, in the vicinity of Windsong and Wind Creek Lane, approximately 3,000 feet of 6-inch force main, 6,450 feet of 8-inch gravity line and 18 manholes. In addition, a utility easement will be required for the construction of the Lift Station. Currently, the area is served by individual septic systems.

CITY OF FRIENDSWOOD
IMPACT FEE STUDY

E. EQUIVALENT SERVICE UNITS

In Section 395.014 (a) (4), the Impact Fee Legislation requires that the study provide a *“definitive table establishing the specific quantity of use, consumption, generation, or discharge of a service unit for each category of capital improvements or facility expansions, and an equivalent or conversion table establishing the ratio of a service unit to various types of land uses, including residential, commercial, and industrial.”*

Many municipalities have determined that the method that is the most equitable and easy to administer is based on the water meter size required to support the proposed building or facility. The American Water Works Association has published tables identifying the industry standard rated flow rates for meters of various sizes.

These flow rates are compared to the standard residential meter (1” for Friendswood) as one service unit and provide an equivalency factor to determine the total impact fee. This method is recommended since it provides the most equitable determination of actual *impact* of the development on the water and wastewater systems.

Table 8 establishes Equivalency Factors for water meters based on AWWA hydraulic capacities standard to the engineering industry:

TABLE 8
EQUIVALENT METER TABLE

Actual Meter Size (inches)	AWWA Capacity (GPM)	Equivalency Factor
1	50	1
1-1/2	100	2
2	160	3
3	300	6
4	500	10
6	1000	20
8	1600	32
10	2300	46
12	4300	86

CITY OF FRIENDSWOOD
IMPACT FEE STUDY

As of October 2018, the Utility Billing Department reported a total of 12,614 existing residential water meters in the City of Friendswood. As shown in Table 9, the majority of those meters (12,513/12,614 = 99%) are 1" in size or smaller, and therefore represent a 1:1 equivalency. However, there are also 101 residential meters that are larger than 1".

Using the Equivalency Factors determined in Table 8 above, these 12,614 residential meters represent a total of 12,760 equivalent meters:

TABLE 9
CURRENT RESIDENTIAL METER SUMMARY

Meter Size (inches)	Equivalency Factor	Residential Water Meters	Equivalent Meters
1*	1	12,513	12,513
1-1/2	2	66	132
2	3	34	109
3	6	1	6
4	10		0
6	20		0
8	32		0
10	46		0
12	86		0
Total		12,614	12,760

* Includes 3/4", 5/8", and 1" water meters.

CITY OF FRIENDSWOOD
IMPACT FEE STUDY

In addition to the residential water meters, the Utility Billing Department also identified 558 existing non-residential water meters in the City of Friendswood. As shown in Table 10, the majority of those meters (339/558 = 60%) are 1" in size or smaller, and therefore represent a 1:1 equivalency. However, there are also 219 non-residential meters that are larger than 1".

Using the Equivalency Factors determined in Table 8 above, these 558 non-residential meters represent a total of 1,140 equivalent meters:

TABLE 10
CURRENT NON-RESIDENTIAL METER SUMMARY

Meter Size (inches)	Equivalency Factor	Non-Residential Water Meters	Equivalent Meters
1*	1	339	339
1-1/2	2	50	100
2	3	141	451
3	6	18	108
4	10	7	70
6	20	2	40
8	32	1	32
10	46		0
12	86		0
Total		558	1,140

* Includes 3/4", 5/8", and 1" water meters.

CITY OF FRIENDSWOOD
IMPACT FEE STUDY

By combining the *Total Actual* and *Total Equivalent* meter data from Tables 9 and 10 for residential and non-residential water meters, Table 11 shows that approximately 8% of the current demand can be attributed to that of non-residential usage:

TABLE 1 1
CURRENT WATER METER SUMMARY

	Residential Water Meters	Non-Residential Water Meters	Total Water Meters
Total Actual Meters	12,614	558	13,172
Total Equivalent Meters	12,760	1,140	13,900
Percentage of Equivalent Meters	92%	8%	100%

In November 1998, when Vision 2020 was prepared by Kenneth Balk & Associates, the non-residential land usage at the time was observed as 8% (536 acres out of 6,759 acres). While the Vision Summary was to “*develop undeveloped land in Friendswood in general conformance to the existing zoning plan with regard to the split between residential and non-residential land as 73% Residential and 27% Commercial and Light Industrial,*” Friendswood is still predominantly a residential community.

Utilizing the 1.5% Growth Rate recommended in Section II. Land Use Assumptions, the number of Equivalent Service Units (ESU) projected to be added from 2018 to 2028 can be determined per Section 395.014 (a) (5) and (6) of the Impact Fee Legislation.

According to the HGAC data, there were 13,511 total households within the City limits of Friendswood in 2015. With a corresponding 2015 population of 38,435, this equates to a ratio of 2.84 persons per household. In the year 2020, HGAC predicts that Friendswood will have 41,589 people in 14,258 households, representing 2.92 persons per household. Averaging these HGAC data points (2.84 and 2.92) results in a density of 2.88, which directly corresponds with the 2016 Census data of 2.88 persons per household in Friendswood. Previous updates have implemented 2.80, 2.82, and 3.00, indicating that 2.88 persons per household is an appropriate value for this Study.

In addition to Friendswood’s residential population, approximately 8% of the water and wastewater usage is represented by non-residential development. Assuming a continued density of 2.88 people per household, and a corresponding increase in non-residential development of 8%, the following increase in ESU will provide the basis for determining the maximum allowable impact fee that may be charged by the City:

CITY OF FRIENDSWOOD
IMPACT FEE STUDY

TABLE 12
EQUIVALENT SERVICE UNITS
Section 395.014 (a) (6)

Projected increase in population for planning period (Table 4):	6,492
Projected increase in population per Service Unit:	6,492/2.88
Projected increase in Residential Service Units:	2,254
Projected increase in Non-Residential Service Units (8%):	180
Equivalent Service Units for planning period (2018-2028) =	2,434 ESU

CITY OF FRIENDSWOOD
IMPACT FEE STUDY

IV. IMPACT FEES

The impact fee amount per Equivalent Service Unit (ESU) will be determined based on the number of service units projected to be added to the systems over the 10-year planning period. The single-family residence will be considered as the standard service unit.

A. ADMINISTRATIVE ITEMS

1. The impact fee will be *assessed* (subject to future updates) at the time that a plat is filed (where applicable), and *collected* during the building permit process, as identified in the impact fee legislation.
2. Parks and temporary construction trailers will not be assessed any impact fees.
3. Houses and businesses obtaining additional meter(s) for fire line or lawn irrigation purposes only will not pay the impact fee associated with water or wastewater.
4. The Architect or Engineer for the Owner will size the water meter for the development based on industry standards.
5. Governmental buildings will not pay the water and wastewater impact fees based on the proposed assessment method.
6. Schools are exempt from payment of impact fees unless the board of trustees consents to a specific agreement in accordance with Chapter 395, Local Government Code.
7. When an existing water meter is changed out, additional impact fees will only be assessed if the meter size is increased. The fee will be based on the incremental increase in the Service Units.
8. When meters are changed out for the same size meter or a smaller meter, no Impact Fee will be assessed.
9. If an existing home is currently on a private well and/or septic system, and public water or wastewater become available:
 - a. If the homeowner connects within 1 year of the installation of the City services, they will not have to pay impact fees.
 - b. If the homeowner has not connected to City services within 1 year, they will pay the full impact fee at the time of their connection.
10. Impact fees do not include tap or meter fees; these regulations do not waive any tap or meter fees.

CITY OF FRIENDSWOOD
IMPACT FEE STUDY

B. MAXIMUM IMPACT FEE DETERMINATION

Chapter 395 of the Local Government Code was amended in 2001 to include that the City must provide for one of the following from Section 395.014 Paragraph (a) (7):

- (A) *a credit for the portion of ad valorem tax and utility service revenues generated by new service units during the program period that is used for the payment of improvements, including the payment of debt, that are included in the Capital Improvements Plan; or*
- (B) *in the alternative, a credit equal to 50 percent of the total projected cost of implementing the capital improvements plan.*

The City of Friendswood has elected to follow option (B) and provide the credit equal to 50 percent of the CIP resulting in the following maximum Impact Fees. Therefore:

TABLE 13
MAXIMUM IMPACT FEES

Total Cost of Water Projects	(Table 7)	=	\$ 6,852,000
Total Cost of Wastewater Projects	(Table 7)	=	\$ 13,731,000
Increase in Service Units	(Table 12)	=	2,434
Total Cost of Water Projects from CIP/Increase in Service Units (2018-2028)			
	$\$6,852,000 / 2,434$	=	\$ 2,815 / ESU
Total Cost of Wastewater Projects from CIP/Increase in Service Units (2018-2028)			
	$\$13,731,000 / 2,434$	=	\$ 5,641 / ESU
Maximum Water Impact Fee:	$\$ 2,815 \times 50\%$	=	\$ 1,407 / ESU
Maximum Wastewater Impact Fee:	$\$ 5,641 \times 50\%$	=	\$ 2,820 / ESU
Maximum Total Impact Fee:	$\$ 1,407 + \$2,820$	=	\$ 4,227 / ESU

CITY OF FRIENDSWOOD
IMPACT FEE STUDY

V. SUMMARY AND RECOMMENDATIONS

The City of Friendswood, Texas has elected to adopt Water and Wastewater Impact Fees to assist in the financing of Capital Improvements for the systems that are necessitated by growth and development anticipated in the City.

- The Planning Period for this Impact Fee Study is **2018 to 2028**.
- A growth rate of **1.5%** per year is recommended for projection of population and resulting service units for the calculation of the Impact Fee amount.
- The projected population increase for this Planning Period is **6,492** people.
- The equivalent increase in service units is **2,434 ESU**.
- The Total Costs for eligible Water Projects identified in the CIP equate to **\$6,852,000**.
- The Total Costs for eligible Wastewater Projects in the CIP equate to **\$13,731,000**.
- The Maximum Water Impact Fee is **\$1,407** per ESU.
- The Maximum Wastewater Impact Fee is **\$2,820** per ESU.

TABLE 14
PREVIOUS IMPACT FEES

Year	Water	Sewer	Total
2003	\$1,892	\$967	\$2,859
2008	\$1,849	\$1,290	\$3,139
2013	\$2,088	\$840	\$2,928

The City of Friendswood has traditionally adopted the maximum calculated Impact Fee, as recommended by the Capital Improvement Advisory Committee. While a community can elect to adopt a *lesser* amount than the maximum calculated Impact Fee, they cannot adopt a *greater* amount.

Based on the information presented in this 2018 Impact Fee Study, the Capital Improvement Advisory Committee recommends that the City Council adopt the following Impact Fee rates:

RECOMMENDED WATER IMPACT FEE	=	\$1,407 / ESU
RECOMMENDED WASTEWATER IMPACT FEE	=	\$2,820 / ESU
RECOMMENDED TOTAL IMPACT FEE	=	\$4,227 / ESU

EXHIBIT "B"

UPDATED IMPACT FEE CHART





City of Friendswood

IMPACT FEES

Meter Size	Water	Wastewater	Total
1"	\$1,407	\$2,820	\$4,227
1.5"	\$2,814	\$5,640	\$8,454
2"	\$4,221	\$8,460	\$12,681
3"	\$8,442	\$16,920	\$25,362
4"	\$14,070	\$28,200	\$42,270
6"	\$28,140	\$56,400	\$84,540
8"	\$45,024	\$90,240	\$135,264
10"	\$64,722	\$129,720	\$194,442
12"	\$121,002	\$242,520	\$363,522

EXHIBIT "B"



FRIENDSWOOD CITY COUNCIL AGENDA ITEM FORM

This form should be completed and forwarded to the City Manager's Office as soon as possible prior to the first date that the item is expected to be placed on the Friendswood City Council agenda.

Date requested for City Council consideration: 02/02/19

Date Submitted: 01/30/19

Dept. Clearances: Melinda Welsh

Prepared by: City Secretary Melinda Welsh

Subject: Calling General Election/Ordinance No. 2019-04

Originating Department: City Secretary's Office City Attorney Review: Yes

Proceeding: Ordinances

Degree of importance: Critical ☒ Significant ☐ Elective ☐

Expenditure Required: *

Amount Budgeted: *

Appropriation Required: N/A

Source of Funds:

FINANCE APPROVAL: *krh*

MK

Morad Kabiri
City Manager

SUMMARY / ORIGINATING CAUSE

This request is for City Council to approve Ordinance No. 2019-04, which calls for a General Election to be held on May 04, 2019, for the purpose of electing a Councilmember to Position No. 4 and a Councilmember to Position No. 6.

Historically, the City has conducted its own elections. However, due to the substantial cost of replacing the City's aging election equipment with the vendor's new voting system, and the vendor no longer supporting some of the key equipment and services of the current equipment, the City Secretary's office proposed during the City's budget process to contract with Galveston County for election services to conduct the City's General Election. Galveston County purchased the new voting system, which will be utilized for the first time at the May 2019 election.

Galveston County has agreed to conduct the election for the entire City, which includes Galveston County **and** Harris County voters that live in the city limits of Friendswood. Galveston County will offer county-wide vote centers so all the City's registered voters may vote at Friendswood City Hall, as they have always done for the City's elections, or at one of the other polling locations in Galveston County.

Early Voting hours will be Monday, April 22, 2019, through Friday, April 26, 2019, from 8:00 AM – 5:00 PM. Early Voting is required to have two – twelve hour days during the Early Voting period. The proposed ordinance designates Monday, April 29, 2019, and Tuesday, April 30, 2019, as the two – twelve hour days, with hours of 7:00 AM – 7:00 PM. Saturday Early Voting will no longer be held as in previous years. Election Day voting hours are 7:00 AM – 7:00 PM on May 04, 2019.

IMMINENT CONSEQUENCES / BENEFIT TO COMMUNITY

The registered voters of the City will participate in the electoral process.

RECOMMENDATIONS

Approve the ordinance calling the General Election.

ATTACHMENTS

[Ord No 2019-04](#)
[Exhibits A and B](#)

(Title: Ordering a General City Election to be held on May 04, 2019)

ORDINANCE NO. T2019-04

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF FRIENDSWOOD, TEXAS, CALLING FOR THE HOLDING OF A GENERAL ELECTION ON MAY 04, 2019, FOR THE PURPOSE OF ELECTING TWO (2) COUNCILMEMBERS (POSITION NUMBERS 4 AND 6); ORDERING A RUNOFF ELECTION ON JUNE 08, 2019, IF NECESSARY; AND MAKING OTHER PROVISIONS RELATED TO THE SUBJECT.

* * * * *

WHEREAS, the Friendswood City Council deems that in accordance with the laws of the State of Texas, a General Election should occur on May 04, 2019, for the purpose of electing two (2) Councilmembers (Position Numbers 4 and 6); and

WHEREAS, the Friendswood City Council wishes to proceed with the ordering of such election and the City Council has determined that holding such election is in the public interest; and

WHEREAS, the laws of the State of Texas further provide that the Texas Election Code (“Code”) is applicable to all municipal elections and in order to comply with said Code, an ordinance should be passed establishing the procedures to be followed for the May 4, 2019, election;

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF FRIENDSWOOD, STATE OF TEXAS:

Section 1. General Election; Officers. In accordance with the general laws and the Constitution of the State of Texas, a General Municipal Election is hereby ordered to be held in and throughout the City of Friendswood on May 4, 2019, between the hours of 7:00 o'clock a.m. and 7:00 o'clock p.m. at which General Election all resident, qualified voters of the City of Friendswood, Texas (the “City”) may vote for the purpose of electing the following officials of the City:

Councilmember, Position No. 4

Councilmember, Position No. 6

Section 2. Placement on Official Ballot. No person's name shall be placed upon the official ballot as a candidate for any of the above-mentioned Council positions unless such persons shall have filed his or her sworn application, as provided by Section 141.031 of the Texas Election Code, with the City Secretary of the City at City Hall, located at 910 S. Friendswood Drive, Friendswood, Texas 77546, not later than five o'clock (5:00) p.m. on February 15, 2019.

Section 3. Determination of Ballots. The candidates receiving a majority of votes for the position to be filled at such election shall be declared elected.

Section 4. Persons Qualified to Vote. All resident, qualified electors of the City shall be eligible to vote at the Election.

Section 5. Joint Election. The City, pursuant to the applicable provisions of the Code, will conduct a joint election with other political subdivisions within Galveston County and contract with Galveston County for election services. This joint election shall be conducted pursuant to the terms of the Contract for Election Services (the "Election Contract") between Galveston County, Texas, and the City.

Section 6. Election Locations and Voting Hours on Election Day. The voting locations for voting on Election Day shall be the Galveston County county-wide vote center polling locations as set forth in Exhibit A, or at such other locations as hereafter may be designated by the Galveston County Clerk (the "County Clerk") in accordance with the Contract for Election Services. The City Secretary is hereby authorized to update Exhibit A to reflect the final locations designated by the County Clerk, which locations are hereby adopted and approved. Each polling place shall be open from 7:00 a.m. to 7:00 p.m. on Election Day.

Section. 7. Early Voting. Dwight D. Sullivan, the Galveston County Clerk is appointed as the Early Voting Clerk for the Election. Applications for ballot by mail shall be submitted as follows: Dwight D. Sullivan; Early Voting Clerk; County of Galveston; P.O. Box 17253; Galveston, TX 77552-7253. If mailing by common contract carrier, applications for ballot by mail should be submitted to: Dwight D. Sullivan, Galveston County Clerk; 600 59th Street, Suite 2001; Galveston, Texas 77551-4180. Applications for ballot by mail must be received no later than the close of business on April 23, 2019.

The early voting polling places shall be as designated in Exhibit B, which is attached hereto and incorporated herein for all purposes. Early voting by personal appearance for all election

precincts shall be held at the locations, at the times and on the days set forth in Exhibit B, or at such other locations as hereafter may be designated by the County Clerk as provided in the Contract for Election Services. The City Secretary or designee is hereby authorized to update Exhibit B to reflect the final locations designated by the County Clerk, and such locations are hereby approved.

Section 8. Appointment of Election Officials; Establishment of Central Counting Station. The election judges, alternate judges, clerks, members of the early voting ballot board, the central counting station officials, and other personnel necessary for conducting the Election shall be appointed, election judges and alternate judges may be changed, polling places may be combined for some precincts, and the central counting station shall be established and staffed by Galveston County as provided in the Election Services Agreement and such actions are hereby approved. Further, the City Council hereby authorizes the City Secretary to appoint any such other officials not designated herein or appointed pursuant to the Contract for Election Services as are necessary and appropriate to conduct the Election in accordance with the Code. The central counting stations to receive and tabulate votes shall be at the locations designated by Galveston County.

Section 9. Runoff Election. If no candidate for any office shall receive a majority of all votes cast for such office at such election as required by the City's Home Rule Charter, a runoff election between the two (2) highest vote-getters for such office shall be held on Saturday, June 08, 2019, (the "Runoff Election"), as permitted by the Texas Election Code.

Section 10. Notice. Notice of the election ordered herein shall be given in accordance with the provisions of the Texas Election Code and returns of such notice shall be made as provided for in said Code.

Section 11. Canvass. City Council, as the canvassing authority of this election, shall canvass the returns at its scheduled meeting to be held on May 13, 2019, at 6:30 p.m. At the completion of the canvass, the Mayor shall deliver the returns and tally lists used in the canvass to the City Secretary; and the City Secretary shall preserve them for a period in accordance with law.

Section 12. It is hereby further found and determined that the City Secretary posted written notice of the date, place and subject of the meeting at which this ordinance was introduced and passed on the bulletin board located at City Hall, a place convenient and readily accessible to

the general public, and such notice having been so posted and remaining posted continuously for at least seventy-two (72) hours preceding the scheduled time of such meeting.

PASSED, APPROVED, AND ADOPTED ON FIRST AND FINAL READING AS PROVIDED FOR BY SECTION 3.11(B) OF THE CITY CHARTER OF FRIENDSWOOD this 4th day of February, 2019.

Mike Foreman
Mayor

ATTEST:

Melinda Welsh, TRMC
City Secretary

EXHIBIT A

ELECTION DAY POLLING LOCATIONS AND SCHEDULE

ELECTION DAY SCHEDULE

Saturday, May 4, 2019 – Polls are open from 7:00 a.m. to 7:00 p.m.

ELECTION DAY POLLING LOCATIONS

Galveston County utilizes countywide voting centers. The City of Friendswood's Galveston County AND Harris County voters may vote at any of the following locations on Election Day:

Friendswood City Hall 910 S. Friendswood Dr. Friendswood, Texas	Nessler Community Center 2010-5th Ave. North Texas City, Texas	Seaside Baptist Church 16534 Termini-San Luis Pass Rd. Jamaica Beach, Texas
Rebecca Sealy Hospital 404 8th St. Classroom (1st Fl) Galveston, Texas	Texas City Central Fire Sta. 1721 25th St. Texas City, Texas	Joe Faggard Community Center 1750 Highway 87 Crystal Beach, Texas
Galveston County Courthouse 722 Moody Galveston, Texas	College of the Mainland (Fine Arts) 1200 N. Amburn Rd. Texas City, Texas	
Scott Building 4116 N 1/2 Galveston, Texas	IBC Bank 2301 W FM 646 Dickinson, Texas	College of the Mainland (North Cty) 200 Parker Ct. League City, Texas
GISD Administration Bldg. 3904 Ave. T Galveston, Texas	Dickinson Community Center 2714 Highway 3 Dickinson, Texas	Creskide Intermediate 4320 W. Main League City, Texas
Moody Methodist Church 2803 53rd St. (Fellowship Hall) Galveston, Texas	San Leon VFD 12th St. and Ave. D San Leon, Texas	Calvary Baptist Church 517 18 th Ave. North Texas City, Texas
Alamo School 5200 Ave. N 1/2 Galveston, Texas	Bacliff Community Center 4503 – 11th Street Bacliff, Texas	North County Annex 174 Calder Dr. League City, Texas
Kemah Community Center 800 Harris and Highway 146 Kemah, Texas	MUD 12 2929 Highway 6 Ste. 300 Bayou Vista, Texas	Regal Estates 500 Enterprise Ave. League City, Texas

Greater St. Matthews Bapt.Ch 6333 Highway 6 Hitchcock, Texas	CCISD Administration Bldg. 2425 E. Main St. (Board Rm) League City, Texas	West County Bldg. 11730 Highway 6 Santa Fe, Texas
Hometown Heroes Park 2105 Dickinson Ave. (gym) League City, Texas	Day Spring Church 2215 FM 646 Rd. North Santa Fe, Texas	League City Intermediate 2588 Webster St. (cafeteria) League City, Texas
Santa Fe ISD Museum 13304 Highway 6 Santa Fe, Texas	League City Civic Center 400 W. Walker (Rm. 1 & 2) League City, Texas	La Marque Community Room 1109 B Bayou Rd. La Marque, Texas
Carver Park Community Center 6415 Park Ave. Texas City, Texas	Mid-County Bldg. 9850 Emmett Lowry Expressway Texas City, Texas	

EXHIBIT B

EARLY VOTING POLLING LOCATIONS AND SCHEDULE

EARLY VOTING SCHEDULE

Monday, April 22, 2019 through Friday, April 26, 2019

Polls are open from 8 a.m. – 5 p.m.

Monday, April 29, 2019 through Tuesday, April 30, 2019

Polls are open from 7 a.m. – 7 p.m.

Galveston County utilizes countywide voting centers. The City of Friendswood's Galveston County AND Harris County voters may vote at any of the following locations during Early Voting:

Main Early Voting Location

Galveston County Justice Center
600 59th St., Galveston, TX 77551
(2nd Floor Conference Room)

Early Voting Locations

Friendswood City Hall
910 S. Friendswood Dr.
Friendswood, Texas

Nessler Community Center
2010-5th Ave. North
Texas City, Texas

Bacliff Community Center
4503 – 11th Street
Bacliff, Texas

Moody Methodist Church
2803 53rd St. (Fellowship Hall)
Galveston, Texas

CCISD Administration
2425 E. Main St. (Board Room)
League City, Texas

Creekside Intermediate
4320 W. Main
League City, Texas

Greater St. Matthews Bapt Ch.
6333 Highway 6
Hitchcock, Texas

Galveston County Court House
722 Moody
Galveston, Texas

North County Annex
174 Calder Drive
League City, Texas

Carver Park Community Center
6415 Park Ave.
Texas City, Texas

MUD 12 Building
2929 Highway 6 Ste. 300
Bayou Vista, Texas

West County Building
11730 Highway 6
Santa Fe, Texas

La Marque City Hall
1109 B Bayou Rd.
La Marque, Texas

Kemah Community Center
800 Harris and Highway 146
Kemah, Texas

Dickinson Community Center
2714 Highway 3
Dickinson, Texas

Joe Faggard Community Center
1750 Highway 87
Crystal Beach, Texas

Galveston County Justice Center
600-59th St. 2nd Floor
Galveston, Texas

College of the Mainland (Fine Arts)
1200 N. Amburn Rd.
Texas City, Texas

Seaside Baptist Church	College of the Mainland (North County)
16534 Termini-San Luis Pass Rd.	200 Parker Ct.
Jamaica Beach, Texas	League City, Texas



FRIENDSWOOD CITY COUNCIL AGENDA ITEM FORM

This form should be completed and forwarded to the City Manager's Office as soon as possible prior to the first date that the item is expected to be placed on the Friendswood City Council agenda.

Date requested for City Council consideration: February 4, 2019

Date Submitted: January 16, 2019

Dept. Clearances: Steven Rhea

Prepared by: Aubrey Harbin

Subject: Proposed amendments to Appendix C Zoning Ordinance Section 8 – Supplementary District Regulations

Originating Department: Community Development

City Attorney Review: Yes

Proceeding: 1st Reading of Ordinance

Degree of importance: Critical ☐ Significant ☐ Elective ☒

Expenditure Required:

Amount Budgeted:

Appropriation Required:

Source of Funds:

FINANCE APPROVAL: N/A

MK

Morad Kabiri
City Manager

SUMMARY / ORIGINATING CAUSE

In 2014, the City of Friendswood earned Bronze Certification in the Scenic City Certification Program. Once awarded, certifications are valid for 5 years. Since it is time to renew our application (deadline March 31), staff and the Planning and Zoning Commission reviewed the Subdivision Ordinance, Zoning Ordinance and Design Criteria Manual to identify minor changes to our ordinances that could possibly assist in achieving a higher score and improved Scenic City Certification.

The mission of the *Scenic City Certification Program* is to support and recognize Texas municipalities that implement high-quality scenic standards for public roadways and public spaces. The Scenic City Certification Program provides a proven, highly-regarded tool to Texas cities for assessment, evaluation and recognition of infrastructure standards.

The proposed amendments in this section include relocating language to clarify that all trees planted to meet landscaping requirements be a minimum 8 feet tall; the location of this item in the zoning ordinance appeared to only apply to certain trees. The changes also add criteria for the protection of trees during and after construction, more specific guidelines to require curbs around island areas within parking lots, require irrigation for long-term maintenance of landscaping, as well as add more specific dumpster screening details.

IMMINENT CONSEQUENCES / BENEFIT TO COMMUNITY

The ordinance changes will help earn more points on the Scenic City application thus raising the ranking level for the City from Bronze level to Silver, Gold, or Platinum.

RECOMMENDATIONS

The Planning and Zoning Commission Ordinance Subcommittee reviewed the proposed amendments and discussed the amendments with the remainder of the Commission. The Planning and Zoning Commission will make a recommendation on the proposed changes following the Joint Public Hearing.

ATTACHMENTS

[Ordinance](#)

(An ordinance amending Appendix C “Zoning,” Section 8, “Supplementary district regulations,” Subsection I, “Landscaping and screening requirements”, by amending various landscape requirements and amending Subsection L. “Reserved” by adding screening details for dumpsters and recycling storage containers.)

ORDINANCE NO. T2019-05

AN ORDINANCE AMENDING APPENDIX C – “ZONING,” SECTION 8, “SUPPLEMENTARY DISTRICT REGULATIONS,” SUBSECTION I, “LANDSCAPING AND SCREENING REQUIREMENTS”, BY AMENDING VARIOUS LANDSCAPE REQUIREMENTS AND AMENDING SUBSECTION L. “RESERVED,” BY ADDING SCREENING DETAILS FOR DUMPSTERS AND RECYCLING STORAGE CONTAINERS; PROVIDING A PENALTY FOR VIOLATION IN AN AMOUNT NOT TO EXCEED \$2000, OR AS OTHERWISE PROVIDED BY LAW; REPEALING ALL ORDINANCES OR PARTS OF ORDINANCES INCONSISTENT OR IN CONFLICT HERewith; AND PROVIDING FOR SEVERABILITY.

* * * * *

WHEREAS, the City Council of the City of Friendswood is continually reviewing the provisions of the City Code of Ordinances, specifically including Appendix C of the Friendswood City Code, (“Zoning”) relating to land use and other circumstances, and;

WHEREAS, the City Council wishes to update and revise the requirements for landscaping and screening, to protect the character and stability of residential, commercial, institutional and industrial areas, to conserve the value of land and buildings of surrounding properties and neighborhoods, and to enhance the aesthetic and visual image of the City of Friendswood; and

WHEREAS, the Planning and Zoning Commission of the City of Friendswood has conducted a public hearing, received input from staff and has issued its final report recommending the amendments referenced hereafter; and

WHEREAS, the Planning and Zoning Commission and the City Council have conducted a joint public hearing in the time and manner required by law; and

WHEREAS, City Council has determined that all public notices have been posted and published, all required hearings on this matter have been held, and that this Ordinance complies with the applicable provisions of the City Charter, City Code and all other applicable laws;

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF FRIENDSWOOD, STATE OF TEXAS:

Section 1. FINDINGS OF FACT.

The facts and matters set forth in the preamble of this Ordinance are hereby found to be true and correct.

Section 2. The City of Friendswood Code of Ordinances, Appendix C, “Zoning”, Section 8, “Supplementary District Regulations”, Subsection I, “Landscaping and Screening Requirements”,

is hereby amended to read as follows:

Appendix C

Zoning

Section 8. - Supplementary district regulations.

I. *Landscaping and screening requirements.*

1. *Purpose.* The provisions of this subsection I for the installation and maintenance of landscaping and screening are intended to protect the character and stability of residential, commercial, institutional and industrial areas, to conserve the value of land and buildings of surrounding properties and neighborhoods, and to enhance the aesthetic and visual image of the community. In furtherance thereof, trees utilized to comply with the requirements of this subsection I shall be of a type contained in the list of qualified trees approved from time to time by the city council and contained in the city's design criteria manual ("Qualified Tree List").

2. *Perimeter landscaping and screening.*

a. *Adjacent property, buffer maintenance and installation.*

(1) When a commercial (CSC, LNC, NC, OP, DD, PUD, A-1) or industrial (LI, I, BP) use is established on a lot or premises located adjacent to any residential zoning district, or when any multiple-family dwelling use is established on a lot or premises adjacent to any property located in a single-family residential zoning district, or when an industrial use is established on a lot or premises adjacent to any property located in a commercial zoning district, a ten-foot in width landscaped open space buffer strip shall be installed and maintained by the owner, developer or operator of the multiple-family dwelling, commercial or industrial property between it and the adjacent protected property.

(2) In addition, an eight-foot-high opaque fence or wall shall be erected and maintained along the common property line. Graduated fences may be allowed by the commission, when the safety and general welfare of the public would be better protected by such design. The fence or wall shall be constructed of wood, masonry, or decorative concrete, or any combination thereof. Metal may be used only as a concealed structural element. Alternatively, some types of vegetation may be allowed for such screening, provided plantings are evergreen and dense enough to provide an opaque or substantially opaque screen. Any combination of fencing, earthen berms, and vegetation may be used to comply with the eight-foot screening requirement.

(3) The provisions of this subsection may not apply where the uses are separated by a driveway, easement, drainage ditch, canal, or similar features determined to provide adequate buffering to those listed herein which are a minimum width of 30 feet. The commission shall determine the required screening after giving due consideration to the intensity of the commercial use, the zoning classification, and adjacent land uses. When a residentially zoned property is rezoned to commercial, an existing fence may, if requested by the staff, the commission, or the applicant, be removed, in whole or in part, to allow joint or shared access to parking and driving areas. Documentation may be required detailing a joint use agreement between or among property owners.

Conversely, when a single-family use is established on property adjacent to any commercial, industrial, or multiple-family zoning district, an eight-foot high opaque fence or wall shall be erected and maintained along the property line. The ten-foot buffer strip shall not in this instance be required.

a-1. *Adjacent property, buffering streets.* All land zoned commercial or industrial, as that term is defined in this section, shall have a minimum ten-foot landscaped open space adjacent to each public right-of-way located within the required yard.

b. *Trees for buffer strips.* If an open space buffer strip is required under the terms of this subsection I, not less than one tree, whether existing or planted, shall be maintained for each 25 lineal feet or portion thereof of solid open space buffer strip.

b-1. ~~Each such~~ *Landscaping trees.* All required trees for landscaping shall be not less than eight feet in height immediately upon planting and shall have a caliper of not less than two inches measured 18 inches above the natural ground level.

c. *Off-street parking landscaping.*

(1) All areas, other than those located within the industrial district, that are used for parking or display of vehicles, boats, construction equipment or production equipment, shall conform to the minimum landscaping requirements of this subsection 2.c. Areas that are of a drive-in nature, such as filling stations, grocery stores, banks and restaurants also, shall conform to the minimum landscaping requirements of this subsection 2.c.

(2) It is the intent of this subsection 2.c to promote the placement of trees along the thoroughfares of the city. Therefore, at least 50 percent of the required trees shall be located between the street and any buildings. No tree other than those species listed as small trees (size 3) on the qualified tree list may be planted under or within ten lateral feet of any overhead utility wire, or over or within five lateral feet of any underground water line, sewer line, transmission line or other utility.

(3) Parking lots shall be considered small if they contain spaces for 20 or less cars. Small parking lots shall have "open" landscaped areas that are equal to not less than ten percent of the parking area and drives in the parking area. The required area may be used as islands or perimeter landscaping or in any combination. A minimum of one Class 1 or Class 2 tree from the qualified tree list shall be planted and maintained for each 250 square feet or portion thereof of landscaped open space area.

Parking lots with more than 20 parking spaces shall have open landscaped areas equal to ten percent of the parking area and drives in the parking area. Fifty percent of the required landscaped area shall be used as islands. Perimeter landscaping shall have at least one such tree for each 40 lineal feet or fraction thereof. Each island shall have one such tree planted and maintained thereon.

(4) All planted islands shall have curbs of sufficient height and width to contain the planted island.

(5) Planted islands are to integrate groundcovers and small shrubs while minimizing the use of medium to tall shrubs; and shall not obstruct visibility of pedestrians and vehicles.

~~(64)~~ Off-street parking areas that are adjacent to residentially zoned property shall have opaque fences or walls, eight feet in height above ground level, which shall be erected and maintained along the property line to provide visual screening.

~~(75)~~ All trees required in this subsection 2.c shall have a caliper of not less than two inches, measured 18 inches above the natural ground level.

(8) If paving around a tree is required on private property, use porous pavements such as cast-in place, monolithic turf, and concrete combinations over specimen roots to allow water and air exchange.

(9) All plants shall receive proper irrigation to encourage deep root growth and survivability.

d. *Existing plant material.*

(1) Where healthy planting exists on a site, the building official shall credit the property owner for existing plants that are retained and used when calculating vegetation requirements under this section. When healthy trees exist on a site, and when they are equivalent in size and species to those required by this subsection, the building official shall credit the property owner for existing trees that are retained and used when calculating requirements under this subsection.

(2) Existing landscape areas to be retained shall be protected from vehicular encroachment and damage during and after the construction phase by appropriate barriers. Parking or storing of vehicles, equipment, or materials is not allowed within the protective root zone.

(3) Protective barricades are to be installed around all protected trees prior to any construction activities on a development site. Barricades are to be installed a minimum of 10-feet from a protected tree or at the designated protective root zone.

(4) Protective barricades may be removed only to prepare the development site for final landscaping activities.

e. *Maintenance and care of trees.*

(1) *Maintenance period for trees.* For any tree installed in fulfillment of the requirements of this appendix, or any previously existing tree used in fulfillment of the requirements of this appendix, it shall be the responsibility of the then property owner to maintain such tree in a healthy condition ~~for the follow-up period~~. In the event of serious damage, disease or death of the tree, or if the tree should otherwise fail to survive ~~said follow-up period~~, the then property owner shall, at his sole cost and expense, replace it with a tree that meets the requirements of this appendix, within 120 days from the date of notification by the city. ~~For purposes of this subsection e(1), the follow-up period shall be a period of two years from the date of issuance of a certificate of occupancy for each such development site or from the date of the acceptance of such development's infrastructure by the city or, in the case where both have occurred, whichever is later.~~

(2) *Pruning of trees.* It shall be unlawful as a normal practice for any person, firm or city department to top any tree on public property. Topping is hereby defined as the severe cutting back of limbs to stubs larger than three inches in diameter within the tree's crown to such a degree so as to remove the normal canopy and disfigure the tree. Trees severely damaged by storms or other causes, or certain trees under utility wires or other obstructions where other pruning practices are impractical may be exempted from the requirements of this appendix at the determination of the building official.

(3) *Maintenance of trees over rights-of-way.*

(a) Any entity pruning trees located in public rights-of-way or in excavating in rights-of-way or in easements shall be required to notify the city building official and to prepare such plans or outline such programs as the official deems necessary. The building official's permission must be secured before such work may begin. A developer shall have the responsibility to verify that such approval has been granted prior to the installation of utilities within easements on the developer's property.

(b) Every owner of any tree overhanging an street or right-of-way within the city shall prune the branches so that such branches shall not obstruct the light from any street lamp or obstruct the view of any street intersection and so that there shall be a clear space of eight feet above the surface of the street or sidewalk. Said owners shall remove all dead, diseased or dangerous trees, or broken or decayed limbs which constitute a menace to the safety of the public. The city shall have the right, with 14 days advance notice to the owner or agent, to prune any tree or shrub on private property when it interferes with the proper spread of light along the street from a street light or interferes with the visibility of any traffic control device or sign.

(c) It is prohibited to cut trees or clear vegetation on public rights-of-way to provide better view of off-premise signs.

(4) *Removal of hazardous trees.* The city shall have the right to cause the removal of any dead or diseased trees on private property within the city, when such trees constitute a hazard to life and property or harbor insects or disease which constitute a potential threat to other trees within the city. The city will notify in writing the owners of such trees. Removal shall be done by said owners at their own expense within 60 days after the date of service of notice. In the event of failure of owners to comply with such provisions, the city shall have the authority to remove such trees and charge the cost of removal on the owners' property tax notice.

f. *Preserving trees; historical significance.*

(1) *Findings.* The founders of the city chose to locate the community in its present location because of the inspiring, tranquil beauty of the huge oaks which occupied the creek banks and surrounding terrain. The name given the new town, Friendswood, was chosen because of its apt description of the settlers members of the Friends Church, and the topographical character of the land, and the woods found in abundance along the four creeks. The city council hereby finds and determines that the preservation of the naturally wooded topography is of historical significance to the city.

(2) *Purpose.* It is the intent of this subsection to encourage the preservation of existing trees within the city, and the historical significance thereof, and to prohibit their unwarranted destruction.

(3) *Tree survey required.*

(a) A tree survey showing thereon the location of all living trees that have a caliper of 12 inches or greater, measured at a point 4½ feet above the natural ground level, shall be required for:

(i) All proposed development on land located in districts zoned as neighborhood commercial (NC), community shopping center (CSC), downtown district (DD), local neighborhood commercial (LNC), office park district (OPD), light industrial (LI), industrial (I), agricultural (A-1), business park (BP), planned unit development—mixed use (PUD-Mixed Use), or multifamily residential, low density (MFR-L), multifamily

residential, medium density (MFR-M), and multifamily residential, high density (MFR-H);

(ii) All proposed development on land for which a specific use permit is required by sections 7.P and 9.G; and

(iii) For residential developments on land located in districts zoned as single-family residential (SFR), planned unit development cluster home (PUC—Cluster Home), or multifamily residential-garden home district (MFR-GHD), provided, however, the tree survey required by this subsection shall be required only for the common areas located within those developments, such as community parks, where residents of the developments would have common access.

(b) If the property contains no trees fitting the description in subsection (a) of this section, no tree survey shall be required if a signed statement verifying that no such trees exist is filed with the community development office of the city (hereinafter "community development").

(c) The developer or owner of the property to be developed shall sign the tree survey certifying that it is, to the best of their knowledge, true and correct.

(d) The tree survey shall be submitted to community development concurrently with or as a part of the site plan, development permit or plat. Community development shall be authorized to review the data on-site for verification. The tree survey shall be accepted by community development or community development shall provide a notice, in writing, of its reasons for any action other than an acceptance thereof.

(4) *Site plan to include trees.*

(a) Every site plan submitted shall include all living trees identified on the tree survey as required by subsection I.f(3) of this section. Each such tree identified on the site plan shall bear a notation indicating the tree's status as either "protected" or "to be removed." A tree identified as "protected" indicates a tree that is not scheduled for removal during construction. A tree identified as "to be removed" indicates a tree that is scheduled for removal during construction. Each tree removed during construction shall be mitigated as required in subsection I.f(6) of this section.

(b) Trees identified with the notation "protected" shall also be physically marked at the development site so as to be readily distinguishable from trees that are identified on the site plan as "to be removed."

(5) *Review and acceptance of site plan.* Community development shall review the tree survey portion of site plans to ensure compliance with the provisions of this subsection.

(6) *Mitigation and incentives.*

(a) Every development requiring the issuance of a development permit or the approval of a site plan or plat shall maintain a minimum of one tree from the qualified tree list for each 30 linear feet of street frontage, with such trees having a minimum caliper of two inches measured at a point 18 inches above the natural ground level.

(b) Class 1 or Class 2 trees, 12 inches in diameter or greater, measured at a point 4½ feet above the natural ground level, shall be counted, on a one-for-one basis, toward the minimum number of trees required by this subsection I. Trees located within a buffer zone shall not be counted unless identified as "protected."

(c) Mitigation shall be required, on a one-for-one basis, for every tree with a caliper of 12 inches or greater, measured at a point 4½ feet above the natural ground level, that is removed from the development site. For each such tree removed, mitigation shall be accomplished by planting one Class 1 or Class 2 tree from the qualified tree list.

(d) New trees used for mitigation purposes or for landscaping shall have a caliper of at least three inches, measured at a point 18 inches above the natural ground level.

(e) The landscaping plan shall clearly indicate which trees are being planted to replace trees identified as "to be removed" during development.

(f) If, due to the nature of a proposed development and unique characteristics of land, trees cannot be planted in a sufficient number to meet the requirements hereof, a developer may elect to provide for a compensating tree to be planted elsewhere within the city. Compensating trees shall be placed on public property, as near as reasonably practicable to the development site, and may be accomplished by donating a tree in kind, or by payment to the city of such amounts as may be established from time to time by city council, based on the city's actual costs of acquisition. Compensating trees shall be planted within the time periods required for replacement trees.

(g) To encourage maintenance of the suburban wooded character of the community, the city council may from time to time establish incentives to developments which retain more Class 1 or Class 2 category trees than is required by this subsection.

(7) *Tree protection.* Property owners shall be required to ensure that each of the trees identified as "protected" on the site plan survives. ~~the follow-up period, as defined in subsection I.e.1 of this section.~~ If a tree identified as "protected" fails to survive, ~~such follow-up period~~ the property owner shall replace such tree, at its sole cost and expense, within 120 days from the date of notification by the city, with a Class 1 or Class 2 tree from the qualified tree list, which has a minimum caliper of three inches, measured 18 inches above natural ground level.

g. *One tree required for each lot developed for single-family residential use.* Each lot developed for single-family residential use shall have one of the ~~required~~ qualified trees located in the

required front yard, before a certificate of occupancy may be issued. An exception may be made by the building official for substantially wooded lots, in instances where the building official determines there is not sufficient space in the front yard for proper growth, or where the planting of the tree would constitute a hazard to persons or property.

h. *Exception for lots used for single-family residential dwelling purposes.* Notwithstanding any other provision of this subsection I to the contrary, nothing contained herein shall be deemed to prohibit the owner or occupant of a single-family residential dwelling from trimming, pruning, or removing any tree located on a lot owned or occupied by such person as a private residence, provided that at least one tree is retained in the front yard, per Section 8.I.g.

Section 3. The City of Friendswood Code of Ordinances, Appendix C “Zoning,” Section 8, “Supplementary district regulations,” Subsection L, “Reserved” is hereby amended to read as follows:

L. ~~*Reserved.*~~ *Screening for Dumpsters and Recycling Storage Containers*

1. Dumpsters and Recycling Collection Areas

a. Dumpsters and recycling collection areas shall be located to minimize their visibility from public streets.

b. Dumpsters and recycling receptacles shall be screened to a height sufficient to screen the refuse from public view.

c. Dumpsters and recycling collection enclosures shall contain permanent walls on three (3) sides with the service opening not directly abutting a public sidewalk. The fourth side shall incorporate enclosure doors.

d. The opening for removal of the dumpster or recycling receptacle for collection is a minimum of twelve (12) feet to allow for proper access when it is serviced. For every dumpster added, an additional ten (10) feet in width is required.

Section 4. INCORPORATION INTO THE CODE, PENALTY CLAUSE.

This Ordinance is hereby incorporated and made a part of the Friendswood City Code of Ordinances. Violation of this Ordinance is subject to the penalty provisions contained in such Code under Section 1-14 “General penalty for violations of Code; continuing violations”, and as otherwise provided by law. Any person who shall willfully, intentionally, or with criminal negligence violate any provision of this Ordinance shall be deemed guilty of a misdemeanor and, upon conviction thereof, shall be fined in an amount not to exceed \$2,000.00. Each day of violation shall constitute a separate offense. An owner may take advantage of the changes to the buffering requirements without the need to provide a revised site plan, by requesting an appropriate permit,

if the requested change is limited solely to the buffering requirements made on the basis of this Ordinance.

Section 5. REPEAL OF CONFLICTING ORDINANCES.

All ordinances or parts of ordinances in conflict or inconsistent with this Ordinance are hereby expressly repealed.

Section 6. SEVERABILITY.

In the event any clause, phrase, provision, sentence, or part of this Ordinance or the application of the same to any person or circumstances shall for any reason be adjudged invalid or held unconstitutional by a court of competent jurisdiction, it shall not affect, impair, or invalidate this Ordinance as a whole or any part or provision hereof other than the part declared to be invalid or unconstitutional; and the City Council of the City of Friendswood, Texas, declares that it would have passed each and every part of the same notwithstanding the omission of any such part thus declared to be invalid or unconstitutional, whether there be one or more parts.

Section 7. NOTICE.

The City Secretary shall give notice of the enactment of this Ordinance by promptly publishing it or its descriptive caption and penalty after final passage in the official newspaper of the City; the Ordinance to take effect upon publication.

PASSED AND APPROVED on first reading this 4th day of February, 2019.

PASSED, APPROVED, AND ADOPTED on second and final reading this 4th day of March, 2019.

Mike Foreman
Mayor

ATTEST:

Melinda Welsh, TRMC
City Secretary



FRIENDSWOOD CITY COUNCIL AGENDA ITEM FORM

This form should be completed and forwarded to the City Manager's Office as soon as possible prior to the first date that the item is expected to be placed on the Friendswood City Council agenda.

Date requested for City Council consideration: February 4, 2019

Date Submitted: January 16, 2019

Dept. Clearances: Steven Rhea

Prepared by: Aubrey Harbin

Subject: Proposed amendments to Appendix C Zoning Ordinance Section 7.5 – Community Overlay District

Originating Department: Community Development

City Attorney Review: Yes

Proceeding: 1st reading of Ordinance

Degree of importance: Critical ☐ Significant ☐ Elective ☒

Expenditure Required:

Amount Budgeted:

Appropriation Required:

Source of Funds:

FINANCE APPROVAL:

MK

Morad Kabiri
City Manager

SUMMARY / ORIGINATING CAUSE

In 2014, the City of Friendswood earned Bronze Certification in the Scenic City Certification Program. Once awarded, certifications are valid for 5 years. Since it is time to renew our application (deadline March 31), staff and the Planning and Zoning Commission reviewed the Subdivision Ordinance, Zoning Ordinance and Design Criteria Manual to identify minor changes to our ordinances that could possibly assist in achieving a higher score and improved Scenic City Certification.

The mission of the *Scenic City Certification Program* is to support and recognize Texas municipalities that implement high-quality scenic standards for public roadways and public spaces. The Scenic City Certification Program provides a proven, highly-regarded tool to Texas cities for assessment, evaluation and recognition of infrastructure standards.

This proposed amendment adds a reference note to the new dumpster screening requirements being proposed in Appendix C Zoning Ordinance Section 8.

IMMINENT CONSEQUENCES / BENEFIT TO COMMUNITY

The ordinance changes will help earn more points on the Scenic City application thus raising the ranking level for the City from Bronze level to Silver, Gold, or Platinum.

RECOMMENDATIONS

The Planning and Zoning Commission Ordinance Subcommittee reviewed the proposed amendments and discussed the amendments with the remainder of the Commission. The Planning and Zoning Commission will make a recommendation on the proposed changes following the Joint Public Hearing.

ATTACHMENTS

[Ordinance](#)

(An ordinance amending Appendix C “Zoning,” Section 7.5, “Community Overlay District,” Subsection 3, “Screening”, Subsection d, “Refuse storage areas, dumpsters, and all related activities” by adding a reference to Section 8.L. for additional screening details for dumpsters and recycling storage containers.)

ORDINANCE NO. T2019-06

AN ORDINANCE AMENDING APPENDIX C – “ZONING,” SECTION 7.5, “COMMUNITY OVERLAY DISTRICT,” SUBSECTION 3, “SCREENING”, SUBSECTION D, “REFUSE STORAGE AREAS, DUMPSTERS, AND ALL RELATED ACTIVITIES” BY ADDING A REFERENCE TO SECTION 8.L. FOR ADDITIONAL SCREENING DETAILS FOR DUMPSTERS AND RECYCLING STORAGE CONTAINERS; PROVIDING A PENALTY FOR VIOLATION IN AN AMOUNT NOT TO EXCEED \$2000, OR AS OTHERWISE PROVIDED BY LAW; REPEALING ALL ORDINANCES OR PARTS OF ORDINANCES INCONSISTENT OR IN CONFLICT HEREWITH; AND PROVIDING FOR SEVERABILITY.

* * * * *

WHEREAS, the City Council of the City of Friendswood is continually reviewing the provisions of the City Code of Ordinances, specifically including Appendix C of the Friendswood City Code, (“Zoning”) relating to land use and other circumstances, and;

WHEREAS, the City Council wishes to update and revise the requirements for dumpster screening, to facilitate the orderly development and growth of the City of Friendswood; and

WHEREAS, the Planning and Zoning Commission of the City of Friendswood has conducted a public hearing, received input from staff and has issued its final report recommending the amendments referenced hereafter; and

WHEREAS, the Planning and Zoning Commission and the City Council have conducted a joint public hearing in the time and manner required by law; and

WHEREAS, City Council has determined that all public notices have been posted and published, all required hearings on this matter have been held, and that this Ordinance complies with the applicable provisions of the City Charter, City Code and all other applicable laws;

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF FRIENDSWOOD, STATE OF TEXAS:

Section 1. FINDINGS OF FACT.

The facts and matters set forth in the preamble of this Ordinance are hereby found to be true and correct.

Section 2. The City of Friendswood Code of Ordinances, Appendix C, “Zoning”, Section 7.5, “Community Overlay District”, Subsection 3, “Screening”, Subsection D, “Refuse Storage Areas, Dumpsters, and all Related Activities”, is hereby amended by adding a reference to Section 8.L, to read as follows:

Appendix C

Zoning

Section 7.5. - Community overlay district.

1. *General purpose and description.* The community overlay district (COD) is intended to preserve and enhance the physical characteristics of the city along its entryways and in the downtown area by promoting the safety, welfare, convenience, and enjoyment of travel along these roads; providing for unified and orderly development; and promoting and aiding economic growth. The establishment of a COD does not repeal the underlying zoning classification of property to which the COD applies. The requirements of the COD are in addition to the requirements of the underlying zoning district, with the exception of the downtown district. The COD does not apply to the DD. The DD is subject to supplementary regulations and the DD geographic limitations as shown on the official zoning map. The COD includes the following thoroughfares: FM 2351 from Friendswood City Limit to Friendswood City Limit, FM 518 from the Friendswood City Limit to the Friendswood City Limit, FM 528 from Friendswood City Limit to Friendswood City Limit, Friendswood Lakes Boulevard (also known as Brittany Bay) from Friendswood City Limit to Friendswood City Limit, Bay Area Boulevard, from Friendswood City Limit to FM 528.
2. *Boundaries.* The boundary of the COD shall be parallel to the thoroughfare right-of-way to include nonresidential properties within 300 feet from the right-of-way. If any portion of such property is within 300 feet, the entire tract is subject to the COD requirements.

3. *Screening.* The following uses on the site shall be screened to a height sufficient to completely screen the use from view at ground level. For the purposes of this subsection, the term "view from ground level" shall mean the view from public walkways situated in the adjoining rights-of-way or from vehicular traffic in the first two traffic lanes in the bordering streets of the COD.
 - a. All outside storage;
 - b. Industrial activities;
 - c. Off-street loading areas;
 - d. Refuse storage areas, dumpsters, and all related activities; See section 8.L.
 - e. Air conditioning, refrigeration, heating, and other mechanical and electrical equipment;
 - f. Microwave and satellite antennas not otherwise preempted from regulation by applicable law or regulation;
 - g. Detention ponds*; and
 - h. Garage bays fronting on the thoroughfares described in subsection 1 of this section.

An opaque screen composed of berms,** walls, fences, vegetation, or a combination of these materials between the property line and the development shall be used; however, in no case shall any of the above-mentioned activities be closer to the street than the setback line.

*If detention ponds are part of the landscaping plan, screening would not be necessary. Ponds may be located no closer than ten feet from abutting rights-of-way if the pond serves only the subject property.

**Berms used for any type of screening shall be limited to a height of three feet above finished grade at the front property line (not including detention facilities), and shall be landscaped.

Section 3. INCORPORATION INTO THE CODE, PENALTY CLAUSE.

This Ordinance is hereby incorporated and made a part of the Friendswood City Code of Ordinances. Violation of this Ordinance is subject to the penalty provisions contained in such Code under Section 1-14 "General penalty for violations of Code; continuing violations", and as otherwise provided by law. Any person who shall willfully, intentionally, or with criminal negligence violate any provision of this Ordinance shall be deemed guilty of a misdemeanor and, upon conviction thereof, shall be fined in an amount not to exceed \$2,000.00. Each day of violation shall constitute a separate offense. An owner may take advantage of the changes to the buffering requirements without the need to provide a revised site plan, by requesting an appropriate permit, if the requested change is limited solely to the buffering requirements made on the basis of this Ordinance.

Section 4. REPEAL OF CONFLICTING ORDINANCES.

All ordinances or parts of ordinances in conflict or inconsistent with this Ordinance are hereby expressly repealed.

Section 5. SEVERABILITY.

In the event any clause, phrase, provision, sentence, or part of this Ordinance or the application of the same to any person or circumstances shall for any reason be adjudged invalid or held unconstitutional by a court of competent jurisdiction, it shall not affect, impair, or invalidate this Ordinance as a whole or any part or provision hereof other than the part declared to be invalid or unconstitutional; and the City Council of the City of Friendswood, Texas, declares that it would have passed each and every part of the same notwithstanding the omission of any such part thus declared to be invalid or unconstitutional, whether there be one or more parts.

Section 6. NOTICE.

The City Secretary shall give notice of the enactment of this Ordinance by promptly publishing it or its descriptive caption and penalty after final passage in the official newspaper of the City; the Ordinance to take effect upon publication.

PASSED AND APPROVED on first reading this 4th day of February, 2019.

PASSED, APPROVED, AND ADOPTED on second and final reading this 4th day of March, 2019.

Mike Foreman
Mayor

ATTEST:

Melinda Welsh, TRMC
City Secretary



FRIENDSWOOD CITY COUNCIL AGENDA ITEM FORM

This form should be completed and forwarded to the City Manager's Office as soon as possible prior to the first date that the item is expected to be placed on the Friendswood City Council agenda.

Date requested for City Council consideration: February 4, 2019

Date Submitted: January 16, 2019

Dept. Clearances: Steven Rhea

Prepared by: Aubrey Harbin

Subject: Proposed amendments to Appendix B Subdivision Ordinance – Section IV. Parkland Dedication

Originating Department: Community Development

City Attorney Review: Yes

Proceeding: 1st reading of Ordinance

Degree of importance: Critical ☐ Significant ☐ Elective ☒

Expenditure Required:

Amount Budgeted:

Appropriation Required:

Source of Funds:

FINANCE APPROVAL:

MK

Morad Kabiri
City Manager

SUMMARY / ORIGINATING CAUSE

In 2014, the City of Friendswood earned Bronze Certification in the Scenic City Certification Program. Once awarded, certifications are valid for 5 years. Since it is time to renew our application (deadline March 31), staff and the Planning and Zoning Commission reviewed the Subdivision Ordinance, Zoning Ordinance and Design Criteria Manual to identify minor changes to our ordinances that could possibly assist in achieving a higher score and improved Scenic City Certification.

The mission of the *Scenic City Certification Program* is to support and recognize Texas municipalities that implement high-quality scenic standards for public roadways and public spaces. The Scenic City Certification Program provides a proven, highly-regarded tool to Texas cities for assessment, evaluation and recognition of infrastructure standards.

This proposed amendment adds a maximum of 20% impervious cover area in parks.

IMMINENT CONSEQUENCES / BENEFIT TO COMMUNITY

The ordinance changes will help earn more points on the Scenic City application thus raising the ranking level for the City from Bronze level to Silver, Gold, or Platinum.

RECOMMENDATIONS

The Planning and Zoning Commission Ordinance Subcommittee reviewed the proposed amendments and discussed the amendments with the remainder of the Commission. The Planning and Zoning Commission will make a recommendation on the proposed changes following the Joint Public Hearing.

ATTACHMENTS

[Ordinance](#)

(An ordinance amending Appendix B “Subdivisions,” Section IV, “Parkland Dedication,” Subsection f, “Additional requirements”, Subsection 2, guidelines used in designing parks and adjacent development, adding Subsection (g), identifying impervious cover requirements for the open space area.)

ORDINANCE NO. T2019-07

AN ORDINANCE AMENDING APPENDIX B – “SUBDIVISIONS,” SECTION IV, “PARKLAND DEDICATION,” SUBSECTION F, “ADDITIONAL REQUIREMENTS”, SUBSECTION 2, GUIDELINES USED IN DESIGNING PARKS AND ADJACENT DEVELOPMENT, ADDING SUBSECTION (G), IDENTIFYING IMPERVIOUS COVER REQUIREMENTS OF THE OPEN SPACE AREA; PROVIDING A PENALTY FOR VIOLATION IN AN AMOUNT NOT TO EXCEED \$2000, OR AS OTHERWISE PROVIDED BY LAW; REPEALING ALL ORDINANCES OR PARTS OF ORDINANCES INCONSISTENT OR IN CONFLICT HERewith; AND PROVIDING FOR SEVERABILITY.

* * * * *

WHEREAS, the City Council of the City of Friendswood is continually reviewing the provisions of the City Code of Ordinances, specifically including Appendix B of the Friendswood City Code, (“Subdivisions”) relating to land use and other circumstances, and;

WHEREAS, the City Council wishes to update and revise the requirements for the development of parks by adding a maximum percentage of allowable impervious cover, as reflected herein, to maintain the open space of the City of Friendswood; and

WHEREAS, the Planning and Zoning Commission of the City of Friendswood has conducted a public hearing, received input from staff and has issued its final report recommending the amendments referenced hereafter; and

WHEREAS, the Planning and Zoning Commission and the City Council have conducted a joint public hearing in the time and manner required by law; and

WHEREAS, City Council has determined that all public notices have been posted and published, all required hearings on this matter have been held, and that this Ordinance complies with the applicable provisions of the City Charter, City Code and all other applicable laws;

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF FRIENDSWOOD, STATE OF TEXAS:

Section 1. FINDINGS OF FACT.

The facts and matters set forth in the preamble of this Ordinance are hereby found to be true and correct.

Section 2. The City of Friendswood Code of Ordinances, Appendix B, “Subdivisions”, Section IV, “Parkland Dedication”, Subsection f, “Additional Requirements”, Subsection 2 is hereby amended by adding 2(g), to read as follows:

Appendix B

Subdivisions

Section IV. - Parkland dedication.

f. *Additional requirements.*

1. Any land dedicated to the city under this section must be suitable for park and recreation uses. The following characteristics of a proposed area are preferred wherever possible:

- (a) The city reserves the right to decline any dedication of proposed parkland if it is determined to be in the best interests of the city.
- (b) Park sites should preferably be located so that users are not required to cross arterial roadways to access them.
- (c) Sites should be located adjacent to schools, where possible, in order to encourage both shared facilities and the potential co-development of new sites.
- (d) Sites should be located adjacent to a greenbelt system, where possible, so that connections to a trail network may be easily achieved.

(e) Sites should not have unusual topography which would render the land unusable for organized recreational activities where these activities are necessary to the type of park.

(f) Sites should have and retain existing trees or other scenic elements.

(g) Land subject to an easement or a right-of-way shall comprise no more than 25 percent of the total land dedicated under the provisions of this section. In addition, any land that is subject to an easement or a right-of-way and which is dedicated under this section must be contiguous with the other area dedicated to the city and must conform with all other requirements of this section.

(h) All offers of dedication must be accompanied by a phase one environmental study verifying the absence of conditions which would inhibit or prohibit its future use and development as park facilities.

2. Parks should be easy to access and be open to public view so as to benefit area development, enhance the visual character of the city, protect public safety and minimize conflict with adjacent land uses. The following guidelines should be used in designing parks and adjacent development:

(a) Where physically feasible, parks should be bounded by streets, or by other public uses (e.g., school, library, recreation center).

(b) A proposed subdivision adjacent to a park may not be designed to restrict reasonable access to the park from other area subdivisions. Street or pedestrian connections to existing and future adjoining subdivisions may be required to provide reasonable access to parks.

(c) Where a nonresidential use directly abuts a park, the city may require the developer to construct, at his expense, screening of a minimum height of eight feet. The screened area must be landscaped on the park side. Access points from the nonresidential use to the park may be permitted.

(d) Alleys may abut a park, where otherwise allowed by ordinance, but they should not be designed to encourage motorized traffic to the park.

(e) Streets abutting a park shall be built in accordance with the thoroughfare plan and the standards of this section, provided, however, the city may require any residential street built adjacent to a park to be constructed to collector width to ensure access and prevent traffic congestion, subject to a proportionality review of the impacts generated by the subdivision, provided, further, that the city may enter into a development agreement with the subdivider to share the costs of street construction for abutting streets.

(f) Wildlife, existing trees and shrubs on the site shall be preserved to the greatest extent practicable.

(g) A park shall not have impervious cover exceeding 20 percent of the open space area.

Section 3. INCORPORATION INTO THE CODE, PENALTY CLAUSE.

This Ordinance is hereby incorporated and made a part of the Friendswood City Code of Ordinances. Violation of this Ordinance is subject to the penalty provisions contained in such Code under Section 1-14 "General penalty for violations of Code; continuing violations", and as otherwise provided by law. Any person who shall willfully, intentionally, or with criminal negligence violate any provision of this Ordinance shall be deemed guilty of a misdemeanor and, upon conviction thereof, shall be fined in an amount not to exceed \$2,000.00. Each day of violation shall constitute a separate offense. An owner may take advantage of the changes to the buffering requirements without the need to provide a revised site plan, by requesting an appropriate permit, if the requested change is limited solely to the buffering requirements made on the basis of this Ordinance.

Section 4. REPEAL OF CONFLICTING ORDINANCES.

All ordinances or parts of ordinances in conflict or inconsistent with this Ordinance are hereby expressly repealed.

Section 5. SEVERABILITY.

In the event any clause, phrase, provision, sentence, or part of this Ordinance or the application of the same to any person or circumstances shall for any reason be adjudged invalid or held unconstitutional by a court of competent jurisdiction, it shall not affect, impair, or invalidate this Ordinance as a whole or any part or provision hereof other than the part declared to be invalid or unconstitutional; and the City Council of the City of Friendswood, Texas, declares that it would have passed each and every part of the same notwithstanding the omission of any such part thus declared to be invalid or unconstitutional, whether there be one or more parts.

Section 6. NOTICE.

The City Secretary shall give notice of the enactment of this Ordinance by promptly publishing it or its descriptive caption and penalty after final passage in the official newspaper of the City; the Ordinance to take effect upon publication.

PASSED AND APPROVED on first reading this 4th day of February, 2019.

PASSED, APPROVED, AND ADOPTED on second and final reading this 4th day of March, 2019.

Mike Foreman
Mayor

ATTEST:

Melinda Welsh, TRMC
City Secretary



FRIENDSWOOD CITY COUNCIL AGENDA ITEM FORM

This form should be completed and forwarded to the City Manager's Office as soon as possible prior to the first date that the item is expected to be placed on the Friendswood City Council agenda.

Date requested for City Council consideration: February 4, 2019

Date Submitted: January 15, 2019

Dept. Clearances: Steven Rhea

Prepared by: Aubrey Harbin

Subject: Request to change the underlying zoning on the property from Single Family Residential (SFR) to Downtown District (DD)

Originating Department: Community Development

City Attorney Review: Yes

Proceeding: 1st Reading of Ordinance

Degree of importance: Critical ☐ Significant ☒ Elective ☐

Expenditure Required:

Amount Budgeted:

Appropriation Required:

Source of Funds:

FINANCE APPROVAL:

MK

Morad Kabiri
City Manager

SUMMARY / ORIGINATING CAUSE

The property owner, currently Reach Church (formerly New Life Assembly of God), is requesting to change the underlying zoning on their property from Single Family Residential (SFR) to Downtown District (DD) in order to market and sell the property for commercial development. They would move the church to another location.

The Zoning Map indicated that there was Specific Use Permit (SUP) on the property to allow a Church; however, during staff research for the rezoning report, staff found that there is no documentation of a SUP ever being approved. If the zone change is approved and the church sells the property to a commercial developer, they will be required to develop the property in accordance with the DD zoning regulations. If another church purchased the property, they could continue the use as a non-conforming use. A Specific Use Permit (SUP) would be required for any expansion for the church use. It is our understanding that the property is currently under contract for purchase to convert the existing building into medical offices and build a retail center along Friendswood Link Rd.

IMMINENT CONSEQUENCES / BENEFIT TO COMMUNITY

The property is located within the Downtown District boundary, which allows them to opt in to the DD zoning district. This property is also located in Area B of the Neighborhood Empowerment Zone (R2008-103), which waives fees for businesses and developers that are "for-profit," zoned Downtown District (DD), and that incorporate sidewalk or façade improvements into their overall development plan according to the Downtown District zoning guidelines. The requested change is also in compliance with the Future Land Use Map 2008.

RECOMMENDATIONS

The Planning and Zoning Commission will make a recommendation following the Joint Public Hearing.

ATTACHMENTS

[Ordinance](#)

[Exhibit A](#)

(Title: An ordinance amending the zoning classification for a tract or parcel containing 1.91 acres located at 104 Whispering Pines Avenue, Friendswood, Texas, by granting a zone classification change from Single-Family Residential (SFR) to Downtown District (DD), as more fully described herein.)

ORDINANCE NO. T2019-08

AN ORDINANCE AMENDING THE CODE OF ORDINANCES OF THE CITY OF FRIENDSWOOD, TEXAS, APPENDIX C – “ZONING,” BY AMENDING THE ZONING CLASSIFICATION FOR A TRACT OR PARCEL CONTAINING 1.91 ACRES OF LAND, BEING PART OF ABSTRACT 151, PAGE 6, PART OF LOT 4 (4-1), BLOCK 11, FRIENDSWOOD SUBDIVISION & ADJACENT ABANDONED HATCHER LANE RIGHT-OF-WAY, GALVESTON COUNTY, TEXAS; AMENDING THE ZONE CLASSIFICATION FROM SINGLE-FAMILY RESIDENTIAL (SFR) TO DOWNTOWN DISTRICT (DD); PROVIDING FOR AMENDMENT OF THE OFFICIAL ZONING MAP; PROVIDING A PENALTY IN AN AMOUNT NOT TO EXCEED \$2,000 FOR EACH DAY OF VIOLATION OF ANY PROVISION HEREOF; AND PROVIDING FOR SEVERABILITY.

* * * * *

WHEREAS, Reach Church Friendswood (formerly New Life Assembly of Friendswood, Texas, Inc.) is the Owner of a 1.91 acre parcel of land, being part of Abstract 151, Page 6, Part of Lot 4 (4-1), Block 11, Friendswood Subdivision & adjacent abandoned Hatcher Lane Right-Of-Way, Galveston County, Texas, as heretofore described pursuant to those deeds filed for record under Clerk’s File Numbers 101975 and 8431602 of the Real Property Records of Galveston County, Texas, as also depicted in Exhibit “A” incorporated herein by reference, (the “Property”); and

WHEREAS, the Owner previously made application to the City to change the zoning classification of the Property from Single-Family Residential (SFR) to Downtown District (DD); and

WHEREAS, the Planning and Zoning Commission and the City Council have conducted, in the time and manner required by law and the City Code of Ordinances, a public hearing on such request, allowing all persons attending to be heard on the question of whether the changes of the uses being requested would affect the public health, safety, or general welfare of the citizens of Friendswood; and

WHEREAS, the Planning and Zoning Commission has filed its written report with City Council, which recommends _____ of the application, subject to any certain conditions made the subject of said recommendation; and

WHEREAS, the City Council deems it appropriate to grant such request, subject to applicable regulations, restrictions, exceptions and conditions; and

WHEREAS, City Council has determined that all public notices have been posted and published, all required hearings on this matter have been held, and that this Ordinance complies with the applicable provisions of the City Charter, City Code and all other applicable laws;

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF FRIENDSWOOD, STATE OF TEXAS:

Section 1. The facts and matters set forth in the preamble of this Ordinance are hereby found to be true and correct and incorporated by reference, including the representations of Applicant, (as referenced in its Zone Change Application), the final report from the Planning & Zoning Commission, and the minutes of City Council, which City Council is specifically relying upon in adopting this Ordinance, as provided hereafter.

Section 2. The Friendswood City Code, Appendix C, “Zoning,” Section 3, “Provision for Official Zoning Map,” is hereby amended, rezoning the Property identified in the attached Exhibit “A”, from Single-Family Residential (SFR) to Downtown District (DD), but otherwise

consistent and subject to the current Zoning Code, and related conditions contained therein.

Section 3. The Zoning District Map of the City of Friendswood shall be revised and amended to show the designation of the Property, as described and as provided in Section 2 above, with the appropriate reference thereon to the number and effective date of this Ordinance, and a brief description of the nature of the change.

Section 4. This Ordinance shall in no manner amend, change, supplement or revise any provision of any ordinance of the City of Friendswood, save and except the change in zoning classification of said Property as conditioned and described above.

Section 5. In the event any section, paragraph, subdivision, clause, phrase, provision, sentence, or part of this Ordinance or the application of the same to any person or circumstance shall for any reason be adjudged invalid or held unconstitutional by a court of competent jurisdiction, it shall not affect, impair, or invalidate this Ordinance as a whole or any part or provision hereof other than the part declared to be invalid or unconstitutional; and the City Council of the City of Friendswood, Texas, declares that it would have passed each and every part of the same notwithstanding the omission of any and every part of the same notwithstanding the omission of any such part thus declared to be invalid or unconstitutional, or whether there be one or more parts.

Section 6. Any person who shall willfully, intentionally, or with criminal negligence violate any provision of this Ordinance shall be deemed guilty of a misdemeanor and, upon conviction thereof, shall be fined in an amount not to exceed \$2,000.00. Each day of violation shall constitute a separate offense.

PASSED AND APPROVED on first reading this 4th - day of February, 2019.

PASSED, APPROVED, and ADOPTED on second and final reading this 4th day of March, 2019.

Mike Foreman
Mayor

ATTEST:

Melinda Welsh, TRMC
City Secretary

Exhibit “A”

1. Application
2. Deeds
3. Metes and Bounds Descriptions
4. Aerial Map
5. Location Map
6. Zoning Map



City of Friendswood – Community Development

910 S. Friendswood Drive

Friendswood, TX 77546

Phone: 281-996-3201 Fax: 281-996-3260

www.ci.friendswood.tx.us

Zone Change Application

CURRENT ZONE OF PROPERTY: SFR

TYPE OF ZONE CHANGE (check one):

☒ Land Use Change to Zone: DD☐ Specific Use Permit Option 1☐ Planned Unit Development Option 1☐ Specific Use Permit Option 2☐ Planned Unit Development Option 2

SUP for Use(s) #: _____

PROPERTY IDENTIFICATION:

Address: 104 Whispering Pines

Platted Land – Plat Name: _____ Lot: _____ Block: _____

Unplatted Land – Attach a certified metes and bounds description

OWNER NAME: New Life Assembly of God Phone: 832-888-7235Owner's Mailing Address: P.O. Box 1014City: Friendswood State: TX Zip: 77549 Fax: _____Owner's Email Address: tracybarnett68@yahoo.comAGENT'S NAME: Donna Winfrey Phone: 713-377-6166Agent's Mailing Address: 1707 1/2 Post Oak Blvd #616City: Houston State: TX Zip: 77056 Fax: _____Agent's Email Address: donna @ winfreydevelopment.com

In authorizing an agent to represent the owner, the owner attests that his/her agent may make verbal or written representations and/or declarations on the owner's behalf and the owner understands and acknowledges that the City of Friendswood shall rely upon the agent's representations in matters pertaining to the above described property. The designation of an agent in this matter in no way absolves the owner of any of the owner's responsibilities outlined by the City of Friendswood. The owner must be the legal owner of record of the property at the time of submittal of the application.

The undersigned hereby request approval by the City Council on the above identified zone change.

Owner's Signature: Pastor Tracy Barnett Date: 12/22/2018Agent's Signature: Donna Winfrey Date: 12/27/2018

Received By: B Summers
 Date of Public Hearing: 2-4-19
 Property Owner Notices: 1-25-19

Application Number: PLAN-2018-003
 Received Date: 12-28-18
 Newspaper Notice: 1-14-19
 Sign on Property: 1-25-19

Submittal Requirements for Zone Change Applications

ALL APPLICATIONS - PUD and SUP Options 1 and 2, Land Use Changes

☒ Application Fee of \$300 (PUD \$500)

(Fee is waived for properties zoned DD or changing to DD zoning)

for profit only

☒ Current Deed of Record

☒ Most recent plat OR Certified Metes and Bounds Description (including name, address and telephone number of surveyor)

PUD Option 1

This option allows all plans, including the site plan, to be approved as a part of the zone change request and is a one-time submittal. See Zoning Ordinance Section 7.J. for more specific plan requirements.

5 – 24" x 36" sets of collated plans including a cover sheet, overall site plan, landscape plan, building elevations, and photometric plan

2 – 24" x 36" sets of collated plans including Engineered drainage, utility, grading and storm water plans (per the City of Friendswood Design Criteria Manual)

2 – 24" x 36" sets architectural plans including mechanical, electrical and plumbing plans

PUD Option 2

This option will require the applicant to apply for site plan approval from the Planning and Zoning Commission at a later date if the zone change to PUD is approved. At the time of site plan approval all information contained in the conceptual plan shall be certified by an engineer and/or surveyor.

5 – 24" x 36" sets of collated plans including a cover sheet or letter describing the project, an overall site plan and building elevations

See Zoning Ordinance Section 7.J. for more specific plan requirements.

Specific Use Permit Option 1

This option allows all plans, including the site plan, to be approved as a part of the SUP request and is a one-time submittal. See Zoning Ordinance Section 9.G.3. for more specific plan requirements.

5 – 24" x 36" sets of collated plans including a cover page, site plan, landscape plan, photometric plan, building elevations, tree survey and mitigation plan

2 – 24" x 36" sets of collated plans including Engineered drainage, utility, grading and storm water plans (per the City of Friendswood Design Criteria Manual)

2 – 24" x 36" sets architectural plans including mechanical, electrical and plumbing plans

Specific Use Permit Option 2

This option allows utility and drainage plans be submitted with the building permit application at a later date if the SUP is approved.

5 – 24" x 36" sets of collated plans including a cover sheet, site plan, landscape plan, photometric plan, building elevations, tree survey and mitigation plan

See Zoning Ordinance Section 9.G.3. for more specific plan requirements.

DEED
BOOK 2799 PAGE 666

101975

4850-A
Clear Lake
O. Moore

NOTICE

Prepared by the State Bar of Texas for use by Lawyers only.
To select the proper form, fill in blank spaces, strike out form provisions or insert
special terms constitutes the practice of law. No "standard form" can meet all
requirements.

WARRANTY DEED WITH VENDOR'S LIEN

THE STATE OF TEXAS

COUNTY OF GALVESTON

KNOW ALL MEN BY THESE PRESENTS:

That we, WILBERT L. BOYLE and MARIE BOYLE

of the County of Galveston and State of Texas for and

in consideration of the sum of Ten and no/100-----(\$10.00)-----DOLLARS

and other valuable consideration to the undersigned paid by the grantee herein named, the receipt of which is hereby acknowledged, and the further consideration of

the execution and delivery by the grantee of its one certain promissory note of even date herewith in the principal sum of Fifteen Thousand Dollars (\$15,000.00) payable to the order of Wilbert L. Boyle and Marie Boyle, at Friendswood, Galveston County, Texas, bearing interest from date thereof at the rate of 7% per annum, matured unpaid principal and interest to bear interest at the rate of 10% per annum from maturity until paid, principal and interest being due and payable in monthly installments of One-Hundred Seventy-Four and 16/100 Dollars (\$174.16) (or more) each, payable on the 15th day of each and every calendar month, beginning January 15, 1977, and continuing regularly thereafter until the whole of said sum, with interest, has been duly paid, interest being calculated on the unpaid principal to the date of each installment paid and the payment credited, first, to the discharge of the interest accrued and the balance to the reduction of principal, said note providing for acceleration of maturity in event of default and for 10% attorney's fees.

the payment of which note is secured by the vendor's lien herein retained, and is additionally secured by a deed of trust of even date herewith to JOHN M. NESHEIM Trustee,

have GRANTED, SOLD AND CONVEYED, and by these presents do GRANT, SELL AND CONVEY unto NEW LIFE ASSEMBLY OF GOD

of the County of Galveston and State of Texas, all of the following described real property in Galveston County, Texas, to-wit:

Being a tract of land containing 71,890 square feet of land or 1.6504 acres of land out of lot 4, block 11, town of Friendswood, in the J. R. Williams and Sara McKissick League, in Galveston County, Texas according to the map thereof recorded in Volume 6, Page 64 of the Galveston County Map Records; said tract being more and particularly described by metes and bounds as follows:

DEED
BOOK 2799 PAGE 667

Commencing in the Southeasterly corner of the above mentioned Lot 4, Block 11, Town of Friendswood;

Thence North 67° 30' 19" West a distance of 120.0 feet to an iron rod in the North right-of-way line of Whispering Pines (60 feet in width) to the place of beginning.

Thence North 67° 30' 19" West, along the North line of Whispering Pines a distance of 178.87 feet to the Southwest corner of the herein described tract of land;

Thence North 22° 29' 42" East, a distance of 250.00 feet to the Northwest corner of the herein described tract of land;

Thence South 67° 30' 19" East, along the North line of the herein described tract of land, a distance of 298.87 feet to the Northeast corner of the herein described tract of land; said corner lying in the East right-of-way line of Friendswood Link Road;

Thence South 22° 29' 42" West along the West line of Friendswood Link Road, a distance of 130.00 feet to the beginning of a curve the the right;

Thence in a Southwesterly direction along said curve whose radius is 120 feet, a distance of 188.50 feet to the end of said curve, said end of curve being in the North line of Whispering Pines, 60 feet wide, to the place of beginning, containing 1.6504 acres of land.

This is subject to all conditions, restrictions and easements of record.

TO HAVE AND TO HOLD the above described premises, together with all and singular the rights and appurtenances thereto in anywise belonging unto the said grantee, its heirs and assigns forever; and we do hereby bind ourselves, our heirs, executors and administrators to WARRANT AND FOREVER DEFEND all and singular the said premises unto the said grantee, its heirs and assigns, against every person whomsoever lawfully claiming or to claim the same or any part thereof.

But it is expressly agreed that the VENDOR'S LIEN, as well as the Superior Title in and to the above described premises, is retained against the above described property, premises and improvements until the above described note and all interest thereon are fully paid according to the face, tenor, effect and reading thereof, when this Deed shall become absolute.

In the event, however, said property should cease to be used for any purpose outlined in the Constitution and By-laws of the South Texas District of Assemblies of God, Inc. due to lack of membership or failure of organization or in the event the congregation should sever its affiliation with the Assembly of God organization, the herein property shall revert to and become the property of South Texas District Council of the Assemblies of God, Inc. in fee simple absolute.

EXECUTED

this

11th

day of

January

A. D. 1937

WILBERT L. BOYLE

x Marie Boyle
MARIE BOYLE

DEED
BOOK 2799 PAGE 668

(Acknowledgment)

THE STATE OF TEXAS
COUNTY OF HARRIS

Before me, the undersigned authority, on this day personally appeared

WILBERT L. BOYLE and MARIE BOYLE

known to me to be the person(s) whose name(s) is/are subscribed to the foregoing instrument, and acknowledged to me that they executed the same for the purposes and consideration therein expressed.

Given under my hand and seal of office on this the

day of January, A. D. 1977
Notary Public in and for Harris County, Texas.

(Acknowledgment)

THE STATE OF TEXAS
COUNTY OF

Before me, the undersigned authority, on this day personally appeared

Known to me to be the person whose name subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and consideration therein expressed.

Given under my hand and seal of office on this the

day of

, A. D. 19

Notary Public in and for

County, Texas.

(Acknowledgment)

THE STATE OF TEXAS
COUNTY OF

Before me, the undersigned authority, on this day personally appeared

known to me to be the person whose name subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and consideration therein expressed.

Given under my hand and seal of office on this the

day of

, A. D. 19

Notary Public in and for

County, Texas.

(Corporate acknowledgment)

THE STATE OF TEXAS
COUNTY OF

Before me, the undersigned authority, on this day personally appeared

of

a corporation, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and consideration therein expressed, in the capacity therein stated and as the act and deed of said corporation.

Given under my hand and seal of office on this the

day of

, A. D. 19

Notary Public in and for

County, Texas.

DEC 07 1977
BOOK 2799 PAGE 669

101973

WARRANTY DEED
WITH VENDOR'S LIEN

WILBERT L. BOYLE and
MARIE BOYLE

TO

NEW LIFE ASSEMBLY OF GOD

PREPARED IN THE LAW OFFICE OF:

JOHN M. NESHEIM
1100 Nasa Rd. One, Suite 600
Houston, Texas 77058
333-4760

PLEASE RETURN TO:

*Shirley Jelle
400 Cypress St.
Houston, TX 77058*

STATE OF TEXAS COUNTY OF GALVESTON
I hereby certify that this instrument was filed on the
date and time stamped herein by me and was duly recorded
in the volume and page of the record records of Galveston
County, Texas as stamped hereon.



FEB 1 1977

John M. Nesheim, Jr.
County Clerk

FILED FOR RECORD
FEB 1 11 19 AM 1977

John M. Nesheim, Jr.
COUNTY CLERK

8431602

Church copy

003-17-2026

THE STATE OF TEXAS X
COUNTY OF GALVESTON X KNOW ALL MEN BY THESE PRESENTS:

THAT RAY UTLEY, of the County of Galveston and State of Texas, for and in consideration of the sum of TEN DOLLARS (\$10.00) and other good and valuable consideration, the receipt of which is hereby acknowledged, has BARGAINED, SOLD, RELEASED, AND FOREVER QUITCLAIMED, and does by these presents BARGAIN, SELL, RELEASE, AND FOREVER QUITCLAIM unto New Life Assembly of God Church, 104 Whispering Pines, Friendswood, Texas 77546, hereinafter referred to as Grantee, all the following described property in Galveston County, Texas, to-wit:

FIELD NOTES ON A 30 FOOT WIDE STRIP OF LAND Out of a 60 foot Strip Formerly Called Friendswood Drive (Now Closed), and Out of Abstract 151, Galveston County, Texas, Said 60 foot Being Adjacent to a Triangular Parcel of Land Described in Book 3135, Page 530, of the Deed Records of Galveston County, Texas, and More Particularly Described by Metes and Bounds As Follows:

Commencing at the intersection of the northwesterly right-of-way of Whispering Pines (60 foot wide portion) with the northeasterly right-of-way of the old Friendswood Drive (Now Closed), said point being the most southerly corner of the property now occupied by the New Life Assembly of God Church;

Thence N. $47^{\circ} 22' 48''$ W. a distance of 20.0 feet to the PLACE OF BEGINNING of this 30 foot strip of land;

THENCE S. $42^{\circ} 02' 07''$ W. a distance of 30.00 feet to a point in the center line of the old Friendswood Drive for the most southerly corner of this tract being described;

THENCE N. $47^{\circ} 22' 48''$ W. along the former center line of the old Friendswood Drive a distance of 286.76 feet to a point for the most northwesterly corner of this tract being described;

THENCE N. $42^{\circ} 02' 07''$ E. a distance of 30.00 feet to a 1/2 inch iron rod for the most northerly corner of this tract being described;

THENCE S. $47^{\circ} 22' 48''$ E. along the former northeasterly right-of-way of old Friendswood Drive a distance of 286.76 feet to the PLACE OF BEGINNING, and containing 0.1975 Acres of Land.

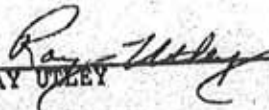
Prepared & Certified By:
COENCO, Inc.
Consulting Engineers

By: Malcolm A. Collins
Malcolm A. Collins, Registered
Professional Engineer and Public
Surveyor

003-17-2027

TO HAVE AND TO HOLD all of the above described premises, together with all and singular the rights, privileges and appurtenances thereto in anywise belonging unto Grantee, its successors and assigns, so that neither the Grantor nor any person or persons representing Grantor shall, at any time hereafter, have, claim, or demand any right or title to the aforesaid premises, or any part thereof.

IN WITNESS WHEREOF, this instrument is executed this 16 day of March, 1984.


RAY UTLEY

THE STATE OF TEXAS
COUNTY OF GALVESTON

003-17-2028

BEFORE ME, the undersigned authority, on this day personally appeared Ray Willey, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and consideration therein expressed.

Given under my hand and seal of office on this the 16 day of MARCH, 1984.

Billie A. Crutman
Notary Public in and for the State
of Texas

My Commission Expires: 1-20-87

FILED FOR RECORD
JUL 2 3 43 PM '84

Mary Jane Edrington
COUNTY CLERK, GALVESTON COUNTY, TEXAS

STATE OF TEXAS

COUNTY OF GALVESTON
I hereby certify that this instrument was filed on the date and time stamped herein by me and was duly recorded in the Official Public Records of Real Property of Galveston County, Texas, on

JUL 2 1984



Mary Jane Edrington
COUNTY CLERK, GALVESTON COUNTY, TEXAS

SHANKS SURVEYORSBilly L. Shanks
REGISTERED PUBLIC SURVEYOR840 Gemini, Suite 204
Houston, Texas 77062

484-8305

MAY 3, 1986

A 209 SQUARE FOOT TRACT OF LAND OUT OF LOT 4, BLOCK 11, FRIENDSWOOD, GALVESTON COUNTY, TEXAS, ACCORDING TO THE PLAT AS RECORDED IN VOLUME 238, PAGE 14 OF THE GALVESTON COUNTY CLERK'S RECORDS AND ALSO BEING PART OF FRIENDSWOOD DRIVE (NOW CLOSED):

COMMENCING AT THE SOUTH CORNER OF SAID LOT 4, BLOCK 11 AND ALSO BEING THE CENTERLINE INTERSECTION OF WHISPERING PINES (60' WIDE) AND FRIENDSWOOD DRIVE (60' WIDE AND NOW ABANDONED);

THENCE N 45° 00' 00" W 230.00 FEET ALONG THE SOUTHWEST LINE OF SAID LOT 4 (ALSO THE CENTERLINE OF FRIENDSWOOD DRIVE) TO THE POINT OF BEGINNING OF THIS TRACT;

THENCE CONTINUING N 45° 00' 00" W 6.76 FEET ALONG THE CENTERLINE OF FRIENDSWOOD DRIVE TO A 1/2" IRON ROD;

THENCE N 44° 49' 00" E 30.00 FEET TO A 1/2" IRON ROD IN THE NORTHEAST LINE OF SAID FRIENDSWOOD DRIVE;

THENCE S 45° 00' 00" E 6.76 FEET ALONG THE NORTHEAST LINE OF FRIENDSWOOD DRIVE TO A POINT IN THE NORTHWEST RIGHT-OF-WAY LINE OF WHISPERING PINES;

THENCE S 44° 49' 00" W 30.00 FEET TO THE POINT OF BEGINNING AND CONTAINING 209 SQUARE FEET OF LAND.



Billy L. Shanks

*not surveying
1.9/1/86*

SHANKS SURVEYORS

Billy L. Shanks
REGISTERED PUBLIC SURVEYOR

940 Gemini, Suite 204
Houston, Texas 77062

484-8305

MARCH 10, 1986

A 1.6442 ACRE TRACT OUT OF LOT 4, BLOCK 11, FRIENDSWOOD,
GALVESTON COUNTY, TEXAS, ACCORDING TO THE PLAT AS RECORDED
IN VOLUME 238, PAGE 14, GALVESTON COUNTY CLERK'S RECORDS:

COMMENCING AT THE SOUTH CORNER OF SAID LOT 4, BLOCK 11 AND BEING AT
THE CENTERLINE INTERSECTION OF WHISPERING PINES (60' WIDE) AND
FRIENDSWOOD DRIVE (60' WIDE BUT NOW CLOSED);

THENCE N 44° 49' 00" E 30.00 FEET ALONG THE SOUTHEAST LINE OF SAID LOT
4 (ALSO THE CENTERLINE OF WHISPERING PINES);

THENCE N 45° 00' 00" W 150.00 FEET TO AN IRON ROD IN THE NORTHEAST
RIGHT-OF-WAY LINE OF FRIENDSWOOD DRIVE (NOW CLOSED) AT THE POINT OF
BEGINNING OF THIS TRACT;

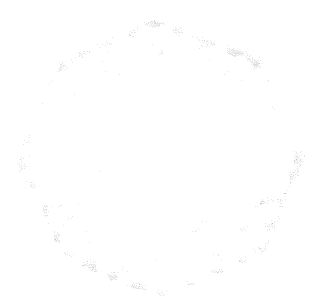
THENCE CONTINUING N 45° 00' 00" W 178.87 FEET ALONG THE NORTHWEST LINE
OF FRIENDSWOOD DRIVE (NOW CLOSED) TO A 5/8" IRON ROD;

THENCE N 44° 49' 00" E 250.00 FEET TO A 1/2" IRON ROD;

THENCE S 45° 00' 00" E 298.87 FEET TO A 1/2" IRON ROD IN THE NORTH-
WEST RIGHT-OF-WAY LINE OF WHISPERING PINES;

THENCE S 44° 49' 00" W 130.00 FEET ALONG THE NORTHWEST RIGHT-OF-WAY LINE
OF WHISPERING PINES TO AN IRON ROD;

THENCE IN A WESTERLY DIRECTION ALONG A CURVE TO THE RIGHT (OLD STREET
RIGHT-OF-WAY LINE AS PREVIOUSLY OCCUPIED) WITH A RADIUS OF 119.62
FEET, A CENTRAL ANGLE OF 90° 11' 00" , A LENGTH OF 183.28 FEET TO
THE POINT OF BEGINNING AND CONTAINING 71,623 SQUARE FEET OR 1.6442
ACRES OF LAND.



Billy L. Shanks

SHANKS SURVEYORS

Billy L. Shanks
REGISTERED PUBLIC SURVEYOR

940 Gemini, Suite 204
Houston, Texas 77062

488-8305

MARCH 10, 1986

A 0.1975 ACRE TRACT OF LAND OUT OF LOT 4, BLOCK 11, FRIENDSWOOD, GALVESTON COUNTY, TEXAS, ACCORDING TO THE PLAT AS RECORDED IN VOLUME 238, PAGE 14 OF THE GALVESTON COUNTY CLERK'S RECORDS AND ALSO BEING PART OF FRIENDSWOOD DRIVE (NOW CLOSED):

COMMENCING AT THE SOUTH CORNER OF SAID LOT 4, BLOCK 11 AND ALSO BEING THE CENTERLINE INTERSECTION OF WHISPERING PINES (60' WIDE) AND FRIENDSWOOD DRIVE (60' WIDE AND NOW ABANDONED);

THENCE N 45° 00' 00" W 50.00 FEET ALONG THE SOUTHWEST LINE OF SAID LOT 4 (ALSO THE CENTERLINE OF FRIENDSWOOD DRIVE) TO THE POINT OF BEGINNING OF THIS TRACT;

THENCE CONTINUING N 45° 00' 00" W 286.76 FEET ALONG THE CENTERLINE OF FRIENDSWOOD DRIVE TO A 1/2" IRON ROD;

THENCE N 44° 49' 00" E 30.00 FEET TO A 1/2" IRON ROD IN THE NORTH-EAST LINE OF SAID FRIENDSWOOD DRIVE;

THENCE S 45° 00' 00" E 286.76 FEET ALONG THE NORTHEAST LINE OF FRIENDSWOOD DRIVE TO A POINT IN THE NORTHWEST RIGHT-OF-WAY LINE OF WHISPERING PINES;

THENCE S 44° 49' 00" W 30.00 FEET ALONG THE NORTHWEST RIGHT-OF-WAY LINE OF WHISPERING PINES TO THE POINT OF BEGINNING AND CONTAINING 0.1975 ACRE OF LAND.



Billy L. Shanks

SHANKS SURVEYORS

Billy L. Shanks
REGISTERED PUBLIC SURVEYOR

640 Gemini, Suite 204
Houston, Texas 77062

403-8305

MARCH 10, 1986

A 3,094 SQUARE FOOT TRACT OF LAND OUT OF THE SOUTH CORNER OF LOT 4, BLOCK 11, FRIENDSWOOD, GALVESTON COUNTY, TEXAS, ACCORDING TO THE PLAT AS RECORDED IN VOLUME 238, PAGE 14 OF THE GALVESTON COUNTY CLERK'S RECORDS:

COMMENCING AT THE SOUTH CORNER OF SAID LOT 4, BLOCK 11 AND BEING AT THE CENTERLINE INTERSECTION OF WHISPERING PINES AND FRIENDSWOOD DRIVE (NOW CLOSED);

THENCE N 44° 49' 00" E 30.00 FEET ALONG THE SOUTHEAST LINE OF SAID LOT 4 (ALSO THE CENTERLINE OF WHISPERING PINES);

THENCE N 45° 00' 00" W 30.00 FEET TO THE POINT OF BEGINNING OF THE HEREIN DESCRIBED TRACT AND ALSO BEING THE INTERSECTION OF THE NORTH-WEST RIGHT-OF-WAY LINE OF WHISPERING PINES (60' WIDE) AND THE NORTH-EAST RIGHT-OF-WAY LINE OF FRIENDSWOOD DRIVE (60' WIDE BUT NOW CLOSED);

THENCE N 45° 00' 00" W 120.00 FEET ALONG THE NORTHEAST LINE OF ABANDONED FRIENDSWOOD DRIVE TO AN IRON ROD;

THENCE IN AN EASTERLY DIRECTION ALONG A CURVE TO THE LEFT WITH A RADIUS OF 119.62 FEET, A CENTRAL ANGLE OF 90° 11' 00", A DISTANCE OF 188.28 FEET TO AN IRON ROD IN THE NORTHWEST RIGHT-OF-WAY LINE OF WHISPERING PINES,

THENCE S 44° 49' 00" W 120.00 FEET ALONG THE NORTHWEST RIGHT-OF-WAY LINE OF WHISPERING PINES TO THE POINT OF BEGINNING AND CONTAINING 3,094 SQUARE FEET OF LAND AND BEING A TRACT OF LAND PREVIOUSLY OCCUPIED BY A PUBLIC STREET.

Billy L. Shanks

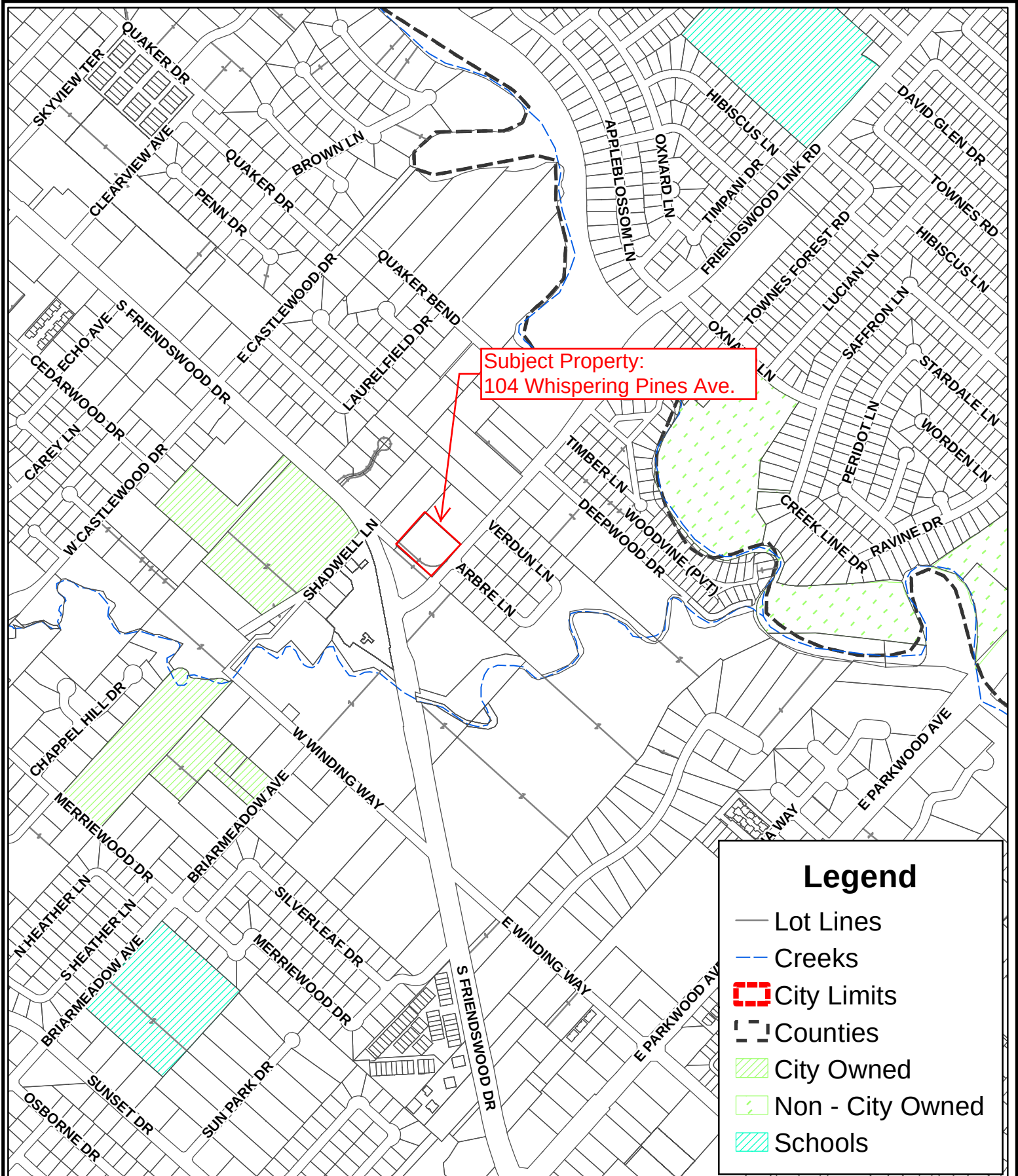


City of Friendswood
910 South Friendswood Drive
Friendswood, Texas 77546
(281) 996-3200
www.ci.friendswood.tx.us

Friendswood GIS Mapping



1" = 200'



Subject Property:
104 Whispering Pines Ave.

Legend

- Lot Lines
- Creeks
- City Limits
- Counties
- City Owned
- Non - City Owned
- Schools

Disclaimer: This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the approximate relative location of property boundaries. Gov. C. §2501.102. The user is encouraged to independently verify all information contained in this product. The City of Friendswood makes no representation or warranty as to the accuracy of this product or to its fitness for a particular purpose. The user: (1) accepts the product AS IS, WITH ALL FAULTS; (2) assumes all responsibility for the use thereof; and (3) releases the City of Friendswood from any damage, loss, or liability arising from such use.

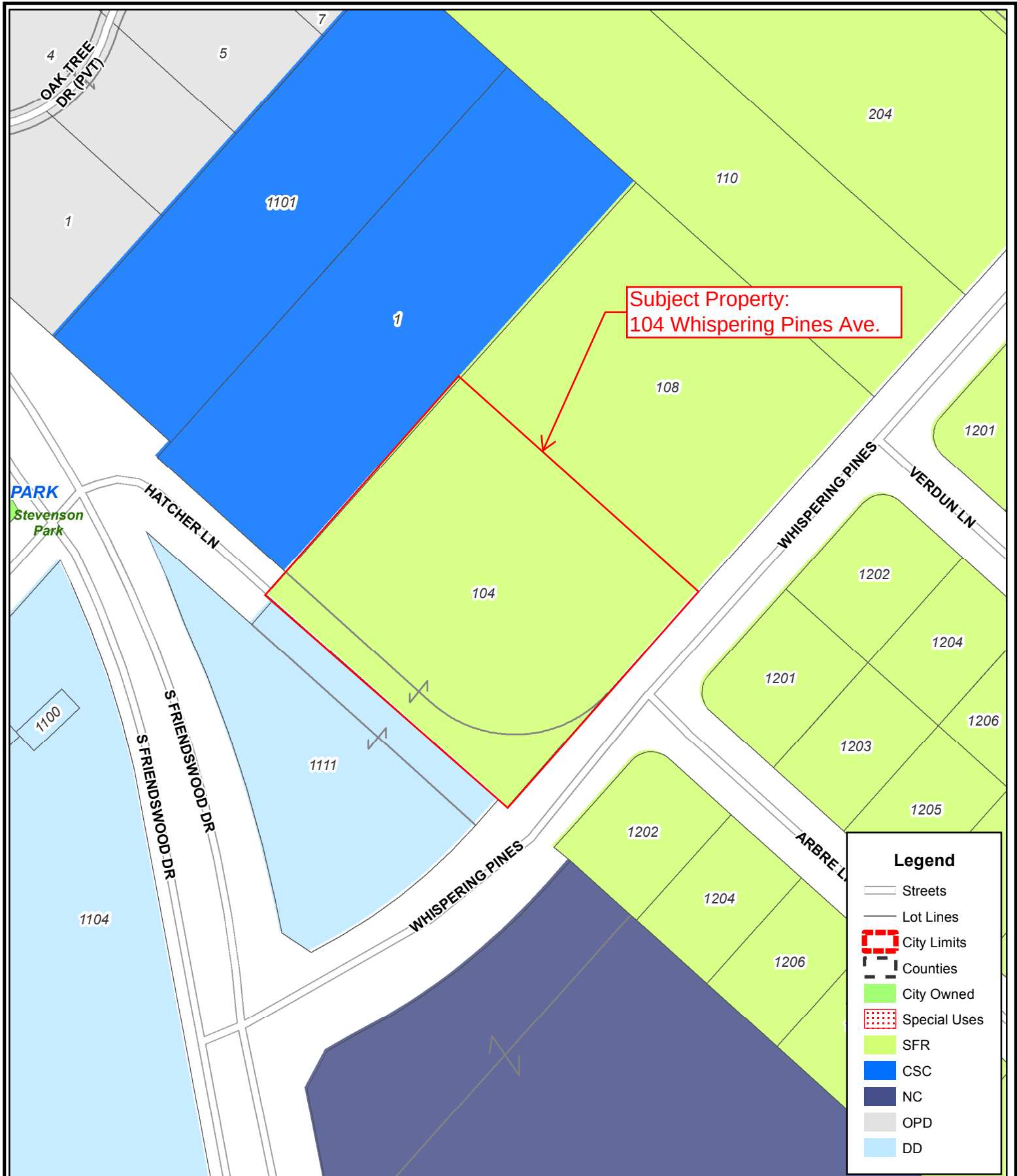


City of Friendswood
910 South Friendswood Drive
Friendswood, Texas 77546
(281) 996-3200
www.ci.friendswood.tx.us

Friendswood GIS Mapping



1" = 803'



Subject Property:
104 Whispering Pines Ave.

Legend

- Streets
- Lot Lines
- City Limits
- Counties
- City Owned
- Special Uses
- SFR
- CSC
- NC
- OPD
- DD

Disclaimer: This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the approximate relative location of property boundaries. Gov. C. §2501.102. The user is encouraged to independently verify all information contained in this product. The City of Friendswood makes no representation or warranty as to the accuracy of this product or to its fitness for a particular purpose. The user: (1) accepts the product AS IS, WITH ALL FAULTS; (2) assumes all responsibility for the use thereof; and (3) releases the City of Friendswood from any damage, loss, or liability arising from such use.



City of Friendswood
910 South Friendswood Drive
Friendswood, Texas 77546
(281) 996-3200
www.ci.friendswood.tx.us

Friendswood GIS Mapping



1" = 120'



FRIENDSWOOD CITY COUNCIL AGENDA ITEM FORM

This form should be completed and forwarded to the City Manager's Office as soon as possible prior to the first date that the item is expected to be placed on the Friendswood City Council agenda.

Date requested for City Council consideration: 02/04/2019

Date Submitted: 01/31/2019

Dept. Clearances: KRH

Prepared by: Jennifer Walker

Subject: FY 2018-19 Budget Amendment IV

Originating Department: Administrative Services City Attorney Review: ☒

Proceeding: Ordinances

Degree of importance: Critical ☐ Significant ☒ Elective ☐

Expenditure Required: \$311,079	Amount Budgeted: \$0
Appropriation Required: \$311,079	Source of Funds: Unassigned General Fund Balance, PIF Asset Forfeiture Funds, 2018 W&S Revenue Bond Proceeds
FINANCE APPROVAL: <i>krh</i>	

MK

Morad Kabiri
City Manager

SUMMARY / ORIGINATING CAUSE

By its nature, our budget is an estimate of the revenues and expenditures needed to accomplish the City Council and Staff goals for the year. Throughout the year events occur that require adjustments to the budget. These adjustments may be needed for various reasons, such as the recognition of extraordinary revenues or expenditures, new projects that are authorized by Council or providing funding for expenditures resulting from extraordinary events like natural disasters. As the need arises, items for budget appropriations are accumulated and then submitted for approval at the City Council meeting each month. The budget adjustments covered by this ordinance comprise the fourth set for fiscal year 2018-19.

We have attempted to provide as much explanation of the adjustments as possible through two sets of exhibits. Exhibit A provides a narrative explanation of each budget amendment. Exhibit B provides the detail of each accounting transaction.

Ordinance and exhibits are reviewed and approved by the City Attorney prior to inclusion on a City Council meeting agenda.

IMMINENT CONSEQUENCES / BENEFIT TO COMMUNITY

Approval of this budget amendment will allow for timely procurement of program supplies and limit delays in the progress of capital improvement projects.

RECOMMENDATIONS

Recommend approval of the ordinance and exhibits covering Budget Amendment IV 2018-19.

ATTACHMENTS

[Ordinance](#)
[Exhibit A](#)
[Exhibit B](#)

(Title: An Ordinance adopting Budget Amendment IV to the Original General Budget of the City for Fiscal Year 2018-2019 to provide for supplemental appropriation and/or transfer of certain funds.)

ORDINANCE NO. T2019-09

AN ORDINANCE AMENDING CITY OF FRIENDSWOOD, TEXAS, ORDINANCE NO. 2018-28, PASSED AND APPROVED OCTOBER 1, 2018, SAME BEING AN ORDINANCE APPROVING AND ADOPTING THE CITY'S GENERAL BUDGET FOR FISCAL YEAR 2018-2019 BY APPROVING "BUDGET AMENDMENT IV" TO THE "ORIGINAL GENERAL BUDGET OF THE CITY OF FRIENDSWOOD, TEXAS, FOR THE FISCAL YEAR 2018-2019"; PROVIDING FOR SUPPLEMENTAL APPROPRIATION AND/OR TRANSFER OF CERTAIN FUNDS; PROVIDING FOR SEVERABILITY; AND PROVIDING OTHER MATTERS RELATED TO THE SUBJECT.

* * * * *

WHEREAS, by Ordinance No. 2018-28, the City Council of the City of Friendswood, Texas, adopted its "Original General Budget for Fiscal Year 2018-2019"; and

WHEREAS, the City Council has determined that revenues and/or reserves are available for supplemental appropriation, and/or that the transfer of certain funds interdepartmentally is economically feasible and in the best interest of prudent budgeting and for municipal purposes; and

WHEREAS, Section 8.04 of The City Charter provides for amendments after adoption of the budget; and

WHEREAS, the City Council desires to amend said Original General Budget to reflect such supplemental appropriation and/or transfer in the fiscal year 2018-2019;

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF FRIENDSWOOD, STATE OF TEXAS:

Section 1. The facts and matters set forth in the preamble of this Ordinance are hereby found to be true and correct.

Section 2. The “Original General Budget of the City of Friendswood, Texas, for the Fiscal Year 2018-2019,” is hereby amended for municipal purposes as shown on “Budget Amendment IV” to the “Original Budget of the City of Friendswood, Texas, for the Fiscal year 2018-2019” attached hereto. Said Budget Amendment IV shall be attached to and made a part of such Original General Budget by the City Secretary and shall be filed as required by state law, a true and correct copy of which is attached hereto as Exhibits “A” and “B” and made a part hereof for all purposes.

Section 3. In the event any clause, phrase, provision, sentence, or part of this ordinance or the application of the same to any person or circumstance shall for any reason be adjudged invalid or held unconstitutional by a court of competent jurisdiction, it shall not affect, impair, or invalidate this ordinance as a whole or any part or provision hereof other than the part declared to be invalid or unconstitutional; and the City Council of the City of Friendswood, Texas, declares that it would have passed each and every part of the same notwithstanding the omission of any such part thus declared to be invalid or unconstitutional, whether there be one or more parts.

PASSED AND APPROVED this 4th day of February, 2019.

Mike Foreman
Mayor

ATTEST:

Melinda Welsh, TRMC
City Secretary

**City of Friendswood
Budget Amendment Summary
Fiscal Year 2018 – 2019
Budget Amendment IV
February 4, 2019**

1. **Sanitary Sewer Assessment Phase V and VI, \$275,000.** Appropriate funding for engineering services. The City Council meeting agenda for February 4, 2019 will include a recommendation for Council's consideration to accept the engineering services contract for Sanitary Sewer Assessment with RJN Group. The funding source for this project has been identified as 2018 Water & Sewer Revenue Bond proceeds.
2. **Police Department Vehicle Insurance Reimbursement, \$183.** Appropriate insurance reimbursements received from Texas Municipal League Intergovernmental Risk Pool. Funding will be appropriated to the Police Department Patrol division vehicle maintenance account for repairs made to unit P298.
3. **Police Department Auto Auction Proceeds, \$4,010.** Appropriate auto auction proceeds received from the sales of Units EM2 and EM3 vehicles. Council approved of the disposal for EM2 and EM3 and use of proceeds at the City Council meeting November 5, 2018. The proceeds will be used to offset the costs to outfit the Light Medium Tactical Vehicle Units LMTV 3 and LMTV 4 in the police department.
4. **Police Investigation Funds, \$17,220.** Appropriate asset forfeiture funds received to outfit Units Boat1, LMTV3, LMTV4, and to replace VHF antenna attached to the tower located at 109 East Willowick. Funds will be appropriated to the Police Investigation Fund (PIF) operating services account.
5. **Library Reserves \$19,172.** Appropriate funds from the designated General Fund Balance Library Board Reserves. Funds will be used to purchase 360 feet of mobile shelving to replace old stationary shelving in the library's foyer area, extending to the reference desk at the back of the building. Funds will be appropriated to the Library Services operating equipment account.
6. **PEG Channel, \$8,704.** Appropriate PEG Channel funds in order to get performance equipment to maintain the increasing demand for more PEG Content in the amount of \$8,538. Also to appropriate funding for AV equipment in the council chambers. The funding source will be restricted general fund balance reserves from PEG Channel revenue.

City of Friendswood

2/4/2019

2018-19 Budget Amendment IV - Exhibit B

BA Number	Account Number	Project No.	Description	Amount
1	421-0000-30600		Appropriate funds from 2018 W&S Revenue Bonds for Sanitary Sewer Assessment-Phase V & VI	(275,000)
1	421-7001-433.8581	SSA_V&VI-ENG	Appropriate funds from 2018 W&S Revenue Bonds for Sanitary Sewer Assessment-Phase V & VI	275,000
2	001-0000-38310		Appropriate TML Insurance reimbursement to Police Department Patrol division vehicle maintenance account for P298	(183)
2	001-2120-421.6300		Appropriate TML Insurance reimbursement to Police Department Patrol division vehicle maintenance account for P298	183
3	001-0000-39210		Appropriate Auction proceeds to Patrol vehicle maintenance account to outfit Police Department units LMTV3 and LMTV 4	(1,960)
3	001-0000-39210		Appropriate Auction proceeds to Patrol vehicle maintenance account to outfit Police Department units LMTV3 and LMTV 4	(2,050)
3	001-2120-421.6300		Appropriate Auction proceeds to Patrol vehicle maintenance account to outfit Police Department units LMTV3 and LMTV 4	1,960
3	001-2120-421.6300		Appropriate Auction proceeds to Patrol vehicle maintenance account to outfit Police Department units LMTV3 and LMTV 4	2,050
4	101-0000-30100		Appropriate Asset Forfeiture Funds to the PIF operating services account to outfit Units and to replace tower antenna	(17,220)
4	101-2120-421.5800	LMTV3	Appropriate Asset Forfeiture Funds to the PIF operating services account to outfit Unit LMTV3	1,750
4	101-2120-421.5800	LMTV4	Appropriate Asset Forfeiture Funds to the PIF operating services account to outfit Unit LMTV4	1,750
4	101-2120-421.7400		Appropriate Asset Forfeiture Funds to the PIF operating services account to replace tower antenna	5,425
4	101-2120-421.8800	BOAT 1	Appropriate Asset Forfeiture Funds to the PIF operating services account to outfit Unit Boat 1	8,295
5	001-0000-30500		Appropriate Library Reserve funds to the Library Department's Capital Equipment account to purchase Mobile Shelving	(19,172)
5	001-6310-459.8800		Appropriate Library Reserve funds to the Library Department's Capital Equipment account to purchase Mobile Shelving	19,172
6	001-0000-30500		Appropriate PEG Channel revenue to purchase equipment	(8,704)
6	001-0416-419.5800	FCPEG	Appropriate PEG Channel revenue to the ASO IT division operating equipment account	992
6	001-0416-419.5800	FCPEG	Appropriate PEG Channel revenue to the ASO IT division operating equipment account	7,546
6	001-0301-413.5800	FCPEG	Appropriate PEG Channel revenue to the City Manager's department operating equipment account	166



FRIENDSWOOD CITY COUNCIL AGENDA ITEM FORM

This form should be completed and forwarded to the City Manager's Office as soon as possible prior to the first date that the item is expected to be placed on the Friendswood City Council agenda.

Date requested for City Council consideration: February 4, 2019

Date Submitted: January 30, 2019

Dept. CMO

Clearances: CM

Prepared by: GCF

Subject: Street Closure

Originating Department: CMO

City Attorney Review: N/A

Proceeding: Consent

Degree of importance: Critical ☐ Significant ☒ Elective ☐

Expenditure Required:

Amount Budgeted:

Appropriation Required:

Source of Funds:

FINANCE APPROVAL: N/A

MK

Morad Kabiri
City Manager

SUMMARY / ORIGINATING CAUSE

The Friends of Downtown Friendswood Association (FDFA) is hosting an event in Stevenson Park on March 2, 2019. As part of their Special Events Application, a portion of Shadwell Lane will be closed.

Due to the magnitude of the event, the City's Parks and Recreation, Police, Fire Marshal's Office and Friendswood Volunteer Fire Department have been in coordination to ensure that safety and traffic control are top priorities.

The required permits have been submitted along with preliminary parking plans, which are attached hereto.

ATTACHMENTS

[Permit Application and Backup Materials](#)

**City of Friendswood application for
"SPECIAL EVENTS"
\$50.00**

Per Appendix C – Zoning Ordinance, Section 8.M.3.b.

"...A permit shall be required for the placement of outdoor sales activities or items within any parking lot, and a permit shall not be granted if the proposed area eliminates required parking areas. Provided however, that special events shall be exempt from this latter provision, where emergency access and parking is approved by the building official in advance of the event. For the purposes of this section, "special event" is defined as a temporary outdoor use on private property that extends beyond the normal uses and standards allowed by the zoning ordinance of the city and which runs not longer than four days. Special event includes, but is not limited to, art shows, sidewalk sales, pumpkin and holiday sales, festivals, craft shows and church bazaars."

Type of event: Friendswood Texas Music Festival

Location of event: 1100 S Friendswood Dr, Stevenson Park

Dates and times of event: March 2, 2019 2:30-10pm (3/1 setup, 3/3 take down)

Person responsible for event: Friends of Downtown Friendswood Asssoc. (Brett Banfield)

Contact #: 281-455-1835 Brett Banfield **Secondary Contact #:** _____

Email: brett@fdfa.org **fax#:** 281-482-7547

Tents: ☒ yes / no (circle one) **enclosed tents** ☒ open sides (circle one) VIP Tent 40x50
Others 20x20
Vendors 10x10
If using tents, proposed number of tents: 10-15 **size of individual tents:** _____

Will there be electricity to the tents? ☒ Yes ☒ No **Will there be generators used?** ☒ Yes ☒ No

Property owner: City of Friendswood

Property owner contact #: _____ **Email:** _____

- ☐ Attach site plan showing display/tent area, parking and access
- ☐ Provide certificate of General Liability insurance, minimum \$300,000.00

In authorizing an agent to represent the owner, the owner attests that his/her agent may make verbal or written representations and/or declarations on the owner's behalf and the owner understands and acknowledges that the City of Friendswood shall rely upon the agent's representations in matters pertaining to the above described property. The designation of an agent in this matter in no way absolves the owner of any of the owner's responsibilities outlined by the City of Friendswood.

PETITION: As owner/Agent, I hereby petition the city for approval of the above described request as provided by the laws of the State of Texas and Ordinances of the City of Friendswood.

(Property owner signature)



(Signature of Person responsible for event)

Office Use Only:

Building Official approval **Date**

Fire Marshal approval **Date**

Planning Department approval **Date**

RECEIPT #: _____

January 22, 2019

Berkenmeier Properties, LLC
Friendswood, Texas

RE: - Friendswood Texas Music Fest - March 2, 2019 – **Letter of Agreement** between
Berkenmeier Properties, LLC (Owner) and Friends of Downtown Friendswood
Association (FDFA)

Dear Mr. Berkenmeier:

In consideration of FDFA utilizing the parking lot area of the office park located 1100 S. Friendswood Drive for Friendswood Texas Music Fest to be held at Stevenson Park on March 2, 2019, our organization agrees to the covenants set forth below:

1. FDFA shall provide an insurance certificate naming Berkenmeier Properties, LLC as additional insured, specifying 1100 S. Friendswood Drive as the location with a General Liability amount of \$1,000,000. Additionally, FDFA will also name Berkenmeier Properties, LLC as additional insured on FDFA's separate event and alcohol sales insurance policy.
2. Trash cans/dumpsters are to be staged near the Chamber by FDFA and will not utilize the Owner's dumpsters.
3. FDFA will ensure a representative is onsite to keep vehicles from parking in the grass and / or over the curbs.
4. FDFA will ensure all trash and debris is removed from Owner's property by Sunday, March 3, 2019.
5. The Friendswood Lions Club will be selling beer behind the Chamber section of the office park and FDFA will ensure all legal procedures will be followed according to TABC regulations and will ensure private security as well as Friendswood Police Department personnel will be onsite at all times. The Friendswood Lions Club will also obtain all required licenses, certification, and insurance for the sale of alcohol.
6. FDFA agrees to defend, indemnify and hold Owner harmless from any damage or liability of any kind arising from any cause whatsoever relating from the Friendswood Texas Music Fest.
7. FDFA agrees to hold the contents of this Letter of Agreement in full confidence.

By: Friends of Downtown Friendswood, Inc.
By, Brett E. Banfield, Its President



By: Berkenmeier Properties, LLC
By: Wayne Berkenmeier, Its President





City of Friendswood

A permit is obtained by making application with the Chief of Police. The permit requires a payment of ten dollars (\$10.00) fee and is valid for one (1) fourteen hour period between the hours of 8:00 a.m. and 10:00 p.m. A permit cannot be issued for the same location more than twice during any thirty day period. **Payment must be made at the cashier's office located at the Friendswood City Hall, 910 S. Friendswood Drive, Friendswood, TX 77546.**

NOISE PERMIT APPLICATION

(Service Hours: 8:00 a.m. – 5:00 p.m., Monday through Friday)

Please Type or Print Legibly.

EVENT LOCATION: Stevenson Park, 1100 S. Friendswood Dr.

DATE OF EVENT: 3/2/2019 TIME OF EVENT: 2:30pm 10:00pm
Start Stop

EVENT DESCRIPTION:

Texas Independence Day Celebration Sponsored by Friends of Downtown Friendswood Association – Texas Country Music Festival

NOISE SOURCE (e.g., live band, DJ, microphone, etc.)

PA, Live Band, Microphone

IS EVENT ☐ INDOOR ☒ OUTDOOR? NUMBER OF GUESTS? 4,000

Applicant's Name (Please print): Brett Banfield

Name of Company or Organization (If applicable): Friends of Downtown Friendswood Assoc

Applicant Address: PO box 335
Friendswood, TX 77549
City, State and Zip Code

Applicant Phone Number: (Day) 281-455-1835 (Eve) 281-455-1835

Will alcoholic beverages be served or permitted on site? ☒ Yes ☒ No

If yes, how will they be served? Alcohol Sales to be conducted off-site but permitted on site, sales to be conducted by 3rd party non-profit...Friendswood Lions Club

Will there be security on site? ☒ Yes ☐ No

Name of person(s) or company providing security services Peace of Mind Security & FPD

Brett Banfield
Applicant Signature

01/22/19
Today's Date

(CITY DEPARTMENT USE ONLY)

☐ Approve ☐ Denied Review Official _____



City of Friendswood
Parks and Recreation Department
910 S. Friendswood Dr.
Friendswood, TX 77546
281-996-3220
rec@friendswood.com
www.friendswood.com

PERMIT #2054

Authorized On: 10/12/2018 02:21 PM

NOTE: Rental

Location

Stevenson Park
1100 S. Friendswood Dr.
Friendswood, 77546

Permit Holder

Friends of Downtown Friendswood
P.O. Box 335
Friendswood, TX 77549
281-482-3636

Authorized Agent

Cole Mendenhall
281-996-3200
rec@friendswood.com
<https://www.friendswood.com>

RESERVATIONS

Location	Facility	Date	Time	Hours	Fee
Stevenson Park	Large Rotary Pavilion	Sat, Mar 2nd 2019	08:00 AM-11:00 PM	15.00	\$0.00
Addons		\$200 Deposit			\$0.00
Addons Total					\$0.00
				TOTAL:	\$0.00

CHARGES

LOCATION	FACILITY	DESCRIPTION	TOTAL	PAID	BALANCE DUE
Stevenson Park	Large Rotary Pavilion	Mar 2, 2019 8:00 AM-11:00 PM	\$0.00	\$0.00	\$0.00
Stevenson Park	Large Rotary Pavilion	\$200 Deposit	\$0.00	\$0.00	\$0.00
TOTAL:			\$0.00	\$0.00	\$0.00

PROMPT RESPONSES

Location	Facilities	Date	Days
Stevenson Park	Large Rotary Pavilion	03/02/2019	Sat

#1 - Any event that charges an admission fee shall pay the City of Friendswood 10 % (percent) of the gross receipts from the admission fee and any concessions sold.

Response: Agreed

Stevenson Park	Large Rotary Pavilion	03/02/2019	Sat
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#2 - Beginning in April 2018, a convenience fee equal to 2.5% will be assessed on all debit and credit card payments made for City of Friendswood utilities, facility rentals, and program charges, permits, fines, and service fees. **Subject to change

Response: Agreed

Stevenson Park	Large Rotary Pavilion	03/02/2019	Sat
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#3 - Will you be serving alcohol at your reservation?

Response: Yes

Stevenson Park	Large Rotary Pavilion	03/02/2019	Sat
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#4 - I, the Permittee, hereby agree to defend, indemnify and hold harmless the City of Friendswood, all its officers, trustees, agents, and employees, from all claims for bodily injury or property damage arising from or out of the presence of Permittee, including its employees, agents, representatives, guests, and others present because of the event or Permittee's activities in or about the City facility, including the entrances, lobbies, and exits thereof, the sidewalks, streets and approaches adjoining the property or any portion of the property used by Permittee or any of the above stated. Permittee shall be responsible for all costs of defense, including reasonable attorney's fees and shall pay all fines or recoveries against the City of Friendswood. Permittee acknowledges that as a condition precedent to the execution of this Agreement by the City of Friendswood, Permittee agrees that it shall have no cause of action against the City of Friendswood for any damage, injury or loss to person or property, from cause whatsoever, unless, to the extent permitted by law, such cause results from the negligent acts of the City of Friendswood.

Response: Agreed

Stevenson Park	Large Rotary Pavilion	03/02/2019	Sat
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#5 - How many people will be attending your reservation?

Response: 100

Thank you for your reservation!



City of Friendswood
Parks and Recreation Department
910 S. Friendswood Dr.
Friendswood, TX 77546
281-996-3220
rec@friendswood.com
www.friendswood.com

PERMIT #2058

Authorized On: 10/12/2018 02:27 PM

NOTE: Rental

Location

Stevenson Park
1100 S. Friendswood Dr.
Friendswood, 77546

Permit Holder

Friends of Downtown Friendswood
P.O. Box 335
Friendswood, TX 77549
281-482-3636

Authorized Agent

Cole Mendenhall
281-996-3200
rec@friendswood.com
<https://www.friendswood.com>

RESERVATIONS

Location	Facility	Date	Time	Hours	Fee
Stevenson Park	Gazebo	Sat, Mar 2nd 2019	02:00 PM-11:00 PM	9.00	\$0.00
	Addons	\$200 Deposit			\$0.00
	Addons Total				\$0.00
TOTAL:					\$0.00

CHARGES

LOCATION	FACILITY	DESCRIPTION	TOTAL	PAID	BALANCE DUE
Stevenson Park	Gazebo	Mar 2, 2019 2:00 PM-11:00 PM	\$0.00	\$0.00	\$0.00
Stevenson Park	Gazebo	\$200 Deposit	\$0.00	\$0.00	\$0.00
TOTAL:			\$0.00	\$0.00	\$0.00

PROMPT RESPONSES

Location	Facilities	Date	Days
Stevenson Park	Gazebo	03/02/2019	Sat

#1 - Any event that charges an admission fee shall pay the City of Friendswood 10 % (percent) of the gross receipts from the admission fee and any concessions sold.

Response: Agreed

Stevenson Park	Gazebo	03/02/2019	Sat
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#2 - Beginning in April 2018, a convenience fee equal to 2.5% will be assessed on all debit and credit card payments made for City of Friendswood utilities, facility rentals, and program charges, permits, fines, and service fees. **Subject to change

Response: Agreed

Stevenson Park	Gazebo	03/02/2019	Sat
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#3 - Will you be serving alcohol at your reservation?

Response: Yes

Stevenson Park	Gazebo	03/02/2019	Sat
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#4 - I, the Permittee, hereby agree to defend, indemnify and hold harmless the City of Friendswood, all its officers, trustees, agents, and employees, from all claims for bodily injury or property damage arising from or out of the presence of Permittee, including its employees, agents, representatives, guests, and others present because of the event or Permittee's activities in or about the City facility, including the entrances, lobbies, and exits thereof, the sidewalks, streets and approaches adjoining the property or any portion of the property used by Permittee or any of the above stated. Permittee shall be responsible for all costs of defense, including reasonable attorney's fees and shall pay all fines or recoveries against the City of Friendswood. Permittee acknowledges that as a condition precedent to the execution of this Agreement by the City of Friendswood, Permittee agrees that it shall have no cause of action against the City of Friendswood for any damage, injury or loss to person or property, from cause whatsoever, unless, to the extent permitted by law, such cause results from the negligent acts of the City of Friendswood.

Response: Agreed

Stevenson Park	Gazebo	03/02/2019	Sat
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#5 - How many people will be attending your reservation?

Response: 100

Thank you for your reservation!



City of Friendswood
Parks and Recreation Department
910 S. Friendswood Dr.
Friendswood, TX 77546
281-996-3220
rec@friendswood.com
www.friendswood.com

PERMIT #2057

Authorized On: 10/12/2018 02:26 PM

NOTE: Rental

Location

Stevenson Park
1100 S. Friendswood Dr.
Friendswood, 77546

Permit Holder

Friends of Downtown Friendswood
P.O. Box 335
Friendswood, TX 77549
281-482-3636

Authorized Agent

Cole Mendenhall
281-996-3200
rec@friendswood.com
<https://www.friendswood.com>

RESERVATIONS

Location	Facility	Date	Time	Hours	Fee
Stevenson Park	Splash Pad Rotary Pavilion	Sat, Mar 2nd 2019	05:00 PM-08:00 PM	3.00	\$0.00
	Addons	\$200 Deposit			\$0.00
	Addons Total				\$0.00
				TOTAL:	\$0.00

CHARGES

LOCATION	FACILITY	DESCRIPTION	TOTAL	PAID	BALANCE DUE
Stevenson Park	Splash Pad Rotary Pavilion	Mar 2, 2019 5:00 PM-8:00 PM	\$0.00	\$0.00	\$0.00
Stevenson Park	Splash Pad Rotary Pavilion	\$200 Deposit	\$0.00	\$0.00	\$0.00
TOTAL:			\$0.00	\$0.00	\$0.00

PROMPT RESPONSES

Location	Facilities	Date	Days
Stevenson Park	Splash Pad Rotary Pavilion	03/02/2019	Sat

#1 - Beginning in April 2018, a convenience fee equal to 2.5% will be assessed on all debit and credit card payments made for City of Friendswood utilities, facility rentals, and program charges, permits, fines, and service fees. **Subject to change

Response: Agreed

Stevenson Park	Splash Pad Rotary Pavilion	03/02/2019	Sat
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#2 - Will you be serving alcohol at your reservation?

Response: No

Stevenson Park	Splash Pad Rotary Pavilion	03/02/2019	Sat
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#3 - I, the Permittee, hereby agree to defend, indemnify and hold harmless the City of Friendswood, all its officers, trustees, agents, and employees, from all claims for bodily injury or property damage arising from or out of the presence of Permittee, including its employees, agents, representatives, guests, and others present because of the event or Permittee's activities in or about the City facility, including the entrances, lobbies, and exits thereof, the sidewalks, streets and approaches adjoining the property or any portion of the property used by Permittee or any of the above stated. Permittee shall be responsible for all costs of defense, including reasonable attorney's fees and shall pay all fines or recoveries against the City of Friendswood. Permittee acknowledges that as a condition precedent to the execution of this Agreement by the City of Friendswood, Permittee agrees that it shall have no cause of action against the City of Friendswood for any damage, injury or loss to person or property, from cause whatsoever, unless, to the extent permitted by law, such cause results from the negligent acts of the City of Friendswood.

Response: Agreed

Stevenson Park	Splash Pad Rotary Pavilion	03/02/2019	Sat
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#4 - How many people will be attending your reservation?

Response: 100

Thank you for your reservation!

Friendswood Texas Music Fest Site Plan (Preliminary)





Cheryl E. Johnson, PCC
Assessor and Collector of Taxes
County of Galveston
722 Moody Avenue, Galveston, Texas 77550
Toll Free (877) 766-2284 Fax: (409) 766-2479
Email: galcotax@co.galveston.tx.us



December 11, 2018

The Governmental Entities of the Galveston County Tax Assessor/Collector's Office:

I, Cheryl E. Johnson, Tax Assessor and Collector of the County of Galveston do solemnly swear that this statement of collections made by me and the disposition thereof during the month of November, 2018 is true and correct.

Under my hand and seal this 11th day of December, 2018.

A handwritten signature in cursive script that reads "Cheryl E. Johnson".

Cheryl E. Johnson, PCC
Galveston County Tax Assessor/Collector

cc: Randall Rice, County Auditor
Linebarger, Goggan, Blair, & Simpson
Perdue, Brandon, Fielder, Collins, & Mott
Assessment & Collection Partners:

City of Bayou Vista
City of Clear Lake Shores (delinquent)
City of Dickinson
City of Friendswood
City of Galveston
City of Hitchcock
City of Jamaica Beach
City of Kemah
City La Marque
City of League City
City of Santa Fe
City of Texas City
City of Tiki Island
Dickinson Independent School District
Galveston Independent School District
High Island Independent School District
Hitchcock Independent School District
College of the Mainland

Galveston Community College
GC Drainage District No. 1
GC Drainage District No. 2
GC Emergency Services Dist. No. 1
GC Emergency Services Dist. No. 2
GC Fresh Water Supply Dist. No. 6
Bacliff MUD
Bayview MUD
Galveston County MUD No. 12
Galveston County MUD No. 13
San Leon MUD
Tara Glen MUD
GC Navigation District No. 1
WCID No. 1
WCID No. 12
WCID No. 19
Westwood Management District

12/10/2018 10:54:03 3115923
 TC298-D SELECTION: DEPOSIT
 RECEIPT DATE: ALL
 LOCATION: ALL

TAX COLLECTION SYSTEM
 DEPOSIT DISTRIBUTION
 FROM: 11/01/2018 THRU 11/30/2018
 JURISDICTION: 0337 FRIENDWD CITY

PAGE: 34
 INCLUDES AG ROLLBACK

YEAR	FUND	TAX RATE	LEVY PAID	DISCOUNT GIVEN	PENALTY INTEREST	TIF AMOUNT	DISBURSE TOTAL	ATTORNEY	OTHER FEES	REFUND AMOUNT	PAYMENT AMOUNT
2018	M & O	.437173	1,229,002.80	.00	.00	.00	1,229,002.80	.00	.00	.00	1,229,002.80
	I & S	.095218	267,681.66	.00	.00	.00	267,681.66	.00	.00	.00	267,681.66
	TOTAL	.532391	1,496,684.46	.00	.00	.00	1,496,684.46	.00	.00	.00	1,496,684.46
2017	M & O	.432349	4,445.15	.00	986.92	.00	5,432.07	1,369.88	.00	.00	6,801.95
	I & S	.095000	976.73	.00	216.85	.00	1,193.58	.00	.00	.00	1,193.58
	TOTAL	.527349	5,421.88	.00	1,203.77	.00	6,625.65	1,369.88	.00	.00	7,995.53
2016	M & O	.462000	2,020.47	.00	770.68	.00	2,791.15	682.18	.00	.00	3,473.33
	I & S	.084000	367.36	.00	140.13	.00	507.49	.00	.00	.00	507.49
	TOTAL	.546000	2,387.83	.00	910.81	.00	3,298.64	682.18	.00	.00	3,980.82
2015	M & O	.497200	816.05	.00	197.07	.00	1,013.12	85.92	.00	.00	1,099.04
	I & S	.071500	117.35	.00	28.33	.00	145.68	.00	.00	.00	145.68
	TOTAL	.568700	933.40	.00	225.40	.00	1,158.80	85.92	.00	.00	1,244.72
2014	M & O	.530300	773.54	.00	229.00	.00	1,002.54	.00	.00	.00	1,002.54
	I & S	.061100	89.12	.00	26.37	.00	115.49	.00	.00	.00	115.49
	TOTAL	.591400	862.66	.00	255.37	.00	1,118.03	.00	.00	.00	1,118.03
2013	M & O	.530300	662.82	.00	301.91	.00	964.73	13.43	.00	.00	978.16
	I & S	.061100	76.36	.00	34.79	.00	111.15	.00	.00	.00	111.15
	TOTAL	.591400	739.18	.00	336.70	.00	1,075.88	13.43	.00	.00	1,089.31
2012	M & O	.530700	212.80	.00	174.49	.00	387.29	87.13	.00	.00	474.42
	I & S	.066300	26.58	.00	21.80	.00	48.38	.00	.00	.00	48.38
	TOTAL	.597000	239.38	.00	196.29	.00	435.67	87.13	.00	.00	522.80
2011	M & O	.521800	211.64	.00	198.94	.00	410.58	.00	.00	.00	410.58
	I & S	.068400	27.74	.00	26.08	.00	53.82	.00	.00	.00	53.82
	TOTAL	.590200	239.38	.00	225.02	.00	464.40	.00	.00	.00	464.40
2010	M & O	.519800	212.66	.00	225.42	.00	438.08	.00	.00	.00	438.08
	I & S	.065300	26.72	.00	28.32	.00	55.04	.00	.00	.00	55.04
	TOTAL	.585100	239.38	.00	253.74	.00	493.12	.00	.00	.00	493.12
2009	M & O	.499700	206.34	.00	243.49	.00	449.83	.00	.00	.00	449.83
	I & S	.080000	33.04	.00	38.98	.00	72.02	.00	.00	.00	72.02
	TOTAL	.579700	239.38	.00	282.47	.00	521.85	.00	.00	.00	521.85
2008	M & O	.509700	210.47	.00	265.20	.00	475.67	108.20	.00	.00	583.87
	I & S	.070000	28.91	.00	36.42	.00	65.33	.00	.00	.00	65.33
	TOTAL	.579700	239.38	.00	301.62	.00	541.00	108.20	.00	.00	649.20
2007	M & O	.501600	208.32	.00	295.81	.00	504.13	115.86	.00	.00	619.99
	I & S	.074800	31.06	.00	44.11	.00	75.17	.00	.00	.00	75.17
	TOTAL	.576400	239.38	.00	339.92	.00	579.30	115.86	.00	.00	695.16

12/10/2018 10:54:03 3115923
 TC298-D SELECTION: DEPOSIT
 RECEIPT DATE: ALL
 LOCATION: ALL

TAX COLLECTION SYSTEM
 DEPOSIT DISTRIBUTION
 FROM: 11/01/2018 THRU 11/30/2018
 JURISDICTION: 0337 FRIENDWD CITY

PAGE: 35
 INCLUDES AG ROLLBACK

YEAR	FUND	TAX RATE	LEVY PAID	DISCOUNT GIVEN	PENALTY INTEREST	TIF AMOUNT	DISBURSE TOTAL	ATTORNEY	OTHER FEES	REFUND AMOUNT	PAYMENT AMOUNT
ALL	M & O		1,238,983.06	.00	3,888.93	.00	1,242,871.99	2,462.60	.00	.00	1,245,334.59
ALL	I & S		269,482.63	.00	642.18	.00	270,124.81	.00	.00	.00	270,124.81
ALL	TOTAL		1,508,465.69	.00	4,531.11	.00	1,512,996.80	2,462.60	.00	.00	1,515,459.40
DLQ	M & O		9,980.26	.00	3,888.93	.00	13,869.19	2,462.60	.00	.00	16,331.79
DLQ	I & S		1,800.97	.00	642.18	.00	2,443.15	.00	.00	.00	2,443.15
DLQ	TOTAL		11,781.23	.00	4,531.11	.00	16,312.34	2,462.60	.00	.00	18,774.94
CURR	M & O		1,229,002.80	.00	.00	.00	1,229,002.80	.00	.00	.00	1,229,002.80
CURR	I & S		267,681.66	.00	.00	.00	267,681.66	.00	.00	.00	267,681.66
CURR	TOTAL		1,496,684.46	.00	.00	.00	1,496,684.46	.00	.00	.00	1,496,684.46

12/10/2018 10:50:23
TC298-M SELECTION: DEPOSIT

3115923

TAX COLLECTION SYSTEM
DEPOSIT DISTRIBUTION
REVERSALS DETAIL SCHEDULE
FROM: 11/01/2018 THRU 11/30/2018
JURISDICTION: 337 FRIENDWD CITY

PAGE: 47
INCLUDES AG ROLLBACK

YEAR DEPOSIT	ACCOUNT NUMBER	EFF YR/MO	LEVY PAID	DISCOUNT GIVEN	PENALTY INTEREST	ATTORNEY CAUSE /REV	REFUND AMOUNT	PAYMENT AMOUNT CAT
2016 RF181120	10501100000019	201612	0.00	0.00	0.00	0.00 HK25	136.50-	136.50-RF
2016 RF181120	10501100000019	201612	136.50-	0.00	0.00	0.00 HK25	136.50	0.00 RF
2016 RF181113	146566	201701	648.78-	0.00	0.00	0.00 16S2	648.78	0.00 RF
2016 RF181113	146566	201701	0.00	0.00	0.00	0.00 16S2	648.78-	648.78-RF
2016 RF181113	169074	201703	0.00	0.00	0.00	0.00 16S2	148.79-	148.79-RF
2016 RF181113	169074	201703	136.50-	0.00	12.29-	0.00 16S2	148.79	0.00 RF
	2016 TOTAL		921.78-	0.00	12.29-	0.00	0.00	934.07-
2017 RF181120	10501100000019	201712	0.00	0.00	0.00	0.00 HK14	152.35-	152.35-RF
2017 RF181120	10501100000019	201712	152.35-	0.00	0.00	0.00 HK14	152.35	0.00 RF
2017 RF181114	146566	201712	0.00	0.00	0.00	0.00 17S1	638.09-	638.09-RF
2017 RF181114	146566	201712	638.09-	0.00	0.00	0.00 17S1	638.09	0.00 RF
2017 762110118TR	168808	201712	896.49-	0.00	0.00	0.00 TEST	0.00	896.49-TR
2017 RF181114	169074	201804	131.84-	0.00	14.50-	0.00 17S1	146.34	0.00 RF
2017 RF181114	169074	201804	0.00	0.00	0.00	0.00 17S1	146.34-	146.34-RF
2017 RF181114	184357	201712	0.00	0.00	0.00	0.00 17S1	202.54-	202.54-RF
2017 RF181114	184357	201712	202.54-	0.00	0.00	0.00 17S1	202.54	0.00 RF
2017 RF181114	292407	201712	0.00	0.00	0.00	0.00 17S1	131.84-	131.84-RF
2017 RF181114	292407	201712	131.84-	0.00	0.00	0.00 17S1	131.84	0.00 RF
2017 RF181114	368782	201711	0.00	0.00	0.00	0.00 17S1	131.84-	131.84-RF
2017 RF181114	368782	201711	131.84-	0.00	0.00	0.00 17S1	131.84	0.00 RF
2017 RF181114	606730	201711	0.00	0.00	0.00	0.00 17S1	687.42-	687.42-RF
2017 RF181114	606730	201711	687.42-	0.00	0.00	0.00 17S1	687.42	0.00 RF
	2017 TOTAL		2,972.41-	0.00	14.50-	0.00	0.00	2,986.91-
2018 817914111618	1277950090004	201811	1,966.44-	0.00	0.00	0.00 CERT	0.00	1,966.44-TR
2018 RF181115	288705	201810	250.22-	0.00	0.00	0.00 18S2	250.22	0.00 RF
2018 RF181115	288705	201810	0.00	0.00	0.00	0.00 18S2	250.22-	250.22-RF
2018 844899112718	292455	201811	847.92-	0.00	0.00	0.00 CERT	0.00	847.92-TR
2018 844899112818	292455	201811	566.75-	0.00	0.00	0.00 CERT	0.00	566.75-TR
2018 864111518PHC	401054	201811	1,933.26-	0.00	0.00	0.00 CERT	0.00	1,933.26-RI
2018 RF181115	521164	201810	163.98-	0.00	0.00	0.00 18S2	163.98	0.00 RF
2018 RF181115	521164	201810	0.00	0.00	0.00	0.00 18S2	163.98-	163.98-RF
	2018 TOTAL		5,728.57-	0.00	0.00	0.00	0.00	5,728.57-

12/10/2018 10:50:23
TC298-M SELECTION: DEPOSIT

3115923

TAX COLLECTION SYSTEM
DEPOSIT DISTRIBUTION
REVERSALS DETAIL SCHEDULE
FROM: 11/01/2018 THRU 11/30/2018
JURISDICTION: 337 FRIENDWD CITY

PAGE: 48
INCLUDES AG ROLLBACK

YEAR DEPOSIT	ACCOUNT NUMBER	EFF YR/MO	LEVY PAID	DISCOUNT GIVEN	PENALTY INTEREST	ATTORNEY CAUSE /REV	REFUND AMOUNT	PAYMENT AMOUNT CAT
	TOTAL REVERSALS		9,622.76-	0.00	26.79-	0.00	0.00	9,649.55-

12/10/2018 11:06:1
TC168

3115854

TAX COLLECTION SYSTEM
TAX COLLECTOR MONTHLY REPORT
FROM 08/01/2018 TO 11/30/2018

PAGE: 17
INCLUDES AG ROLLBACK

FISCAL START: 08/01/2018 END: 07/31/2019 JURISDICTION: 0337 FRIENDWD CITY

	CERT TAXABLE VALUE	ADJUSTMENTS	ADJ TAX VALUE	TAX RATE	TAX LEVY	PAID ACCTS
	-----	-----	-----	-----	-----	-----
CURRENT YEAR	3,292,414,186	148,714,795	3,441,128,981	00.532391	17,901,191.13	2,615
	-----	-----	-----	-----	-----	-----

YEAR	TAXES DUE	MONTH ADJ	ADJUSTMENT YTD	LEVY PAID	PAID YTD	BALANCE	COLL %	YTD UNCOLL
	-----	-----	-----	-----	-----	-----	-----	-----
2018	17,123,229.32	777,961.81	777,961.81	1,931,610.99	1,931,610.99	15,969,580.14	10.79	7.99-
2017	166,852.29	1,668.63-	1,668.63-	89,868.92	89,868.92	75,314.74	54.41	0.00
2016	44,211.77	2,007.04	2,007.04	10,805.34	10,805.34	35,413.47	23.38	0.00
2015	21,670.94	3,980.38	3,980.38	3,106.05	3,106.05	22,545.27	12.11	0.00
2014	22,349.21	2,433.62	2,433.62	2,731.36	2,731.36	22,051.47	11.02	0.00
2013	17,333.06	1,507.74	1,507.74	1,534.25	1,534.25	17,306.55	8.14	0.00
2012	13,775.53	.00	0.00	291.64	291.64	13,483.89	2.12	0.00
2011	13,156.57	.00	0.00	293.09	293.09	12,863.48	2.23	0.00
2010	12,173.22	.00	0.00	239.38	239.38	11,933.84	1.97	0.00
2009	13,941.29	.00	0.00	340.64	340.64	13,600.65	2.44	0.00
2008	10,617.22	.00	0.00	362.40	362.40	10,254.82	3.41	0.00
2007	3,846.68	.00	0.00	249.07	249.07	3,597.61	6.47	0.00
2006	3,780.84	.00	0.00	0.00	0.00	3,780.84		0.00
2005	2,416.01	.00	0.00	0.00	0.00	2,416.01		0.00
2004	650.49	.00	0.00	0.00	0.00	650.49		0.00
2003	647.12	.00	0.00	0.00	0.00	647.12		0.00
2002	924.85	.00	0.00	0.00	0.00	924.85		0.00
2001	941.66	.00	0.00	0.00	0.00	941.66		0.00
2000	996.69	.00	0.00	0.00	0.00	996.69		0.00
1999	481.49	.00	0.00	0.00	0.00	481.49		0.00
1998	551.21	.00	0.00	0.00	0.00	551.21		0.00
1997	0.00	.00	0.00	0.00	0.00	0.00		0.00
****	17,474,547.46	786,221.96	786,221.96	2,041,433.13	2,041,433.13	16,219,336.29		7.99-

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TC160

ALL PROPERTY

TAX COLLECTION SYSTEM
SUPPLEMENTAL / ADJUSTMENT CONTROL TOTALS
FOR TAX YEAR: 2018
JURISDICTION: 0337 FRIENDWD CITY

PAGE: 209
INCLUDES AG ROLLBACK

	CERTIFIED ROLL	ROLL AS OF 08/01/2018	SUPPLEMENTALS THIS PERIOD	ADJUSTMENTS THIS PERIOD	NET CHANGE THIS PERIOD	ROLL AS OF 11/30/2018
	-----	-----	-----	-----	-----	-----
LAND VALUE	4,207,374,518	3,589,474,109	43,561,721	231,285-	43,330,436	3,632,804,545
AG EXCLUSION	23,842,910	23,842,910	541,014	0	541,014	24,383,924
IMPROVEMENTS	617,900,409	617,900,409	135,047,267	161,180-	134,886,087	752,786,496
APPRAISED VALUE	4,207,374,518	4,207,374,518	178,608,988	392,465-	178,216,523	4,385,591,041
EXEMPTIONS	891,117,422	891,117,422	26,793,193	2,167,521	29,501,728	920,619,150
TAXABLE VALUE	3,292,414,186	3,292,414,186	151,274,781	2,559,986-	148,714,795	3,441,128,981
LEVY	17,123,229.32	17,123,229.32	790,495.55	12,533.74-	777,961.81	17,901,191.13
UNCOLLECTIBLE	.00	7.99	.00	.00	.00	7.99
RECEIVABLE					.00	
EXEMPTION COUNTS:						
HOMESTEADS	10,001	10,001	418	11	11	10,012
OVER 65	2,897	2,897	115	8	10	2,907
DISABLED	0	0	2	2	2	2
VETERAN	204	204	13	3-	4-	200
TOTAL EXEMPT	0	0	0	0	0	0

12/10/2018 10:27:0
TC160

ALL PROPERTY

TAX COLLECTION SYSTEM
SUPPLEMENTAL / ADJUSTMENT CONTROL TOTALS
FOR TAX YEAR: 2017
JURISDICTION: 0337 FRIENDWD CITY

PAGE: 210
INCLUDES AG ROLLBACK

	CERTIFIED ROLL	ROLL AS OF 08/01/2018	SUPPLEMENTALS THIS PERIOD	ADJUSTMENTS THIS PERIOD	NET CHANGE THIS PERIOD	ROLL AS OF 11/30/2018
	-----	-----	-----	-----	-----	-----
LAND VALUE	4,271,816,787	3,655,904,976	2,176,969	123,846-	2,053,123	3,657,958,099
AG EXCLUSION	18,989,755	18,989,755	0	0	0	18,989,755
IMPROVEMENTS	615,911,811	615,911,811	201,696	12,468-	189,228	616,101,039
APPRAISED VALUE	4,271,816,787	4,271,816,787	2,378,665	136,314-	2,242,351	4,274,059,138
EXEMPTIONS	988,826,434	988,826,434	2,364,469	357,573	2,722,042	991,548,476
TAXABLE VALUE	3,264,000,598	3,264,000,598	14,196	493,887-	479,691-	3,263,520,907
LEVY	166,852.29	166,852.29	74.86	1,743.49-	1,668.63-	165,183.66
UNCOLLECTIBLE	.00	.00	.00	.00	.00	.00
RECEIVABLE					.00	
EXEMPTION COUNTS:						
HOMESTEADS	10,005	10,005	0	3	3	10,008
OVER 65	2,854	2,854	0	5	5	2,859
DISABLED	0	0	0	2	2	2
VETERAN	207	207	0	0	0	207
TOTAL EXEMPT	647	647	0	0	0	647

12/10/2018 10:27:0
TC160

ALL PROPERTY

TAX COLLECTION SYSTEM
SUPPLEMENTAL / ADJUSTMENT CONTROL TOTALS
FOR TAX YEAR: 2016
JURISDICTION: 0337 FRIENDWD CITY

PAGE: 211
INCLUDES AG ROLLBACK

	CERTIFIED ROLL	ROLL AS OF 08/01/2018	SUPPLEMENTALS THIS PERIOD	ADJUSTMENTS THIS PERIOD	NET CHANGE THIS PERIOD	ROLL AS OF 11/30/2018
	-----	-----	-----	-----	-----	-----
LAND VALUE	3,999,127,118	3,429,239,107	1,872,769	730-	1,872,039	3,431,111,146
AG EXCLUSION	13,436,213	13,436,213	0	0	0	13,436,213
IMPROVEMENTS	569,888,011	569,888,011	0	39,706-	39,706-	569,848,305
APPRAISED VALUE	3,999,127,118	3,999,127,118	1,872,769	40,436-	1,832,333	4,000,959,451
EXEMPTIONS	968,850,710	968,850,710	1,872,769	255,252-	1,617,517	970,468,227
TAXABLE VALUE	3,016,840,195	3,016,840,195	0	214,816	214,816	3,017,055,011
LEVY	44,211.77	44,211.77	.00	2,007.04	2,007.04	46,218.81
UNCOLLECTIBLE	.00	.00	.00	.00	.00	.00
RECEIVABLE					.00	
EXEMPTION COUNTS:						
HOMESTEADS	9,913	9,913	0	5-	5-	9,908
OVER 65	2,721	2,721	0	1-	1-	2,720
DISABLED	0	0	0	1	1	1
VETERAN	242	242	0	0	0	242
TOTAL EXEMPT	642	642	0	0	0	642

12/10/2018 10:27:0
TC160

ALL PROPERTY

TAX COLLECTION SYSTEM
SUPPLEMENTAL / ADJUSTMENT CONTROL TOTALS
FOR TAX YEAR: 2015
JURISDICTION: 0337 FRIENDWD CITY

PAGE: 212
INCLUDES AG ROLLBACK

	CERTIFIED ROLL -----	ROLL AS OF 08/01/2018 -----	SUPPLEMENTALS THIS PERIOD -----	ADJUSTMENTS THIS PERIOD -----	NET CHANGE THIS PERIOD -----	ROLL AS OF 11/30/2018 -----
LAND VALUE	3,624,772,568	3,125,559,710	1,872,729	730-	1,871,999	3,127,431,709
AG EXCLUSION	17,997,504	17,997,504	0	0	0	17,997,504
IMPROVEMENTS	499,212,858	499,212,858	0	0	0	499,212,858
APPRAISED VALUE	3,624,772,568	3,624,772,568	1,872,729	730-	1,871,999	3,626,644,567
EXEMPTIONS	906,250,004	906,250,004	1,872,729	555,003-	1,317,726	907,567,730
TAXABLE VALUE	2,700,525,060	2,700,525,060	0	554,273	554,273	2,701,079,333
LEVY	21,670.94	21,670.94	.00	3,980.38	3,980.38	25,651.32
UNCOLLECTIBLE	.00	.00	.00	.00	.00	.00
RECEIVABLE					.00	
EXEMPTION COUNTS:						
HOMESTEADS	9,425	9,425	0	8-	8-	9,417
OVER 65	2,517	2,517	0	4-	4-	2,513
DISABLED	170	170	0	0	0	170
VETERAN	231	231	0	0	0	231
TOTAL EXEMPT	632	632	0	0	0	632

12/10/2018 10:27:0
TC160

ALL PROPERTY

TAX COLLECTION SYSTEM
SUPPLEMENTAL / ADJUSTMENT CONTROL TOTALS
FOR TAX YEAR: 2014
JURISDICTION: 0337 FRIENDWD CITY

PAGE: 213
INCLUDES AG ROLLBACK

	CERTIFIED ROLL -----	ROLL AS OF 08/01/2018 -----	SUPPLEMENTALS THIS PERIOD -----	ADJUSTMENTS THIS PERIOD -----	NET CHANGE THIS PERIOD -----	ROLL AS OF 11/30/2018 -----
LAND VALUE	3,220,611,338	2,761,917,896	1,872,729	730-	1,871,999	2,763,789,895
AG EXCLUSION	22,656,763	22,656,763	0	0	0	22,656,763
IMPROVEMENTS	458,693,442	458,693,442	0	0	0	458,693,442
APPRAISED VALUE	3,220,611,338	3,220,611,338	1,872,729	730-	1,871,999	3,222,483,337
EXEMPTIONS	739,118,459	739,118,459	1,872,729	314,796-	1,557,933	740,676,392
TAXABLE VALUE	2,458,836,116	2,458,836,116	0	314,066	314,066	2,459,150,182
LEVY	22,349.21	22,349.21	.00	2,433.62	2,433.62	24,782.83
UNCOLLECTIBLE	.00	.00	.00	.00	.00	.00
RECEIVABLE					.00	
EXEMPTION COUNTS:						
HOMESTEADS	9,648	9,648	0	8-	8-	9,640
OVER 65	2,524	2,524	0	3-	3-	2,521
DISABLED	176	176	0	0	0	176
VETERAN	220	220	0	0	0	220
TOTAL EXEMPT	624	624	0	0	0	624

12/10/2018 10:27:0
TC160

ALL PROPERTY

TAX COLLECTION SYSTEM
SUPPLEMENTAL / ADJUSTMENT CONTROL TOTALS
FOR TAX YEAR: 2013
JURISDICTION: 0337 FRIENDWD CITY

PAGE: 214
INCLUDES AG ROLLBACK

	CERTIFIED ROLL -----	ROLL AS OF 08/01/2018 -----	SUPPLEMENTALS THIS PERIOD -----	ADJUSTMENTS THIS PERIOD -----	NET CHANGE THIS PERIOD -----	ROLL AS OF 11/30/2018 -----
LAND VALUE	3,137,530,828	3,137,530,828	0	0	0	3,137,530,828
AG EXCLUSION	23,290,819	23,290,819	0	0	0	23,290,819
IMPROVEMENTS	0	0	0	0	0	0
APPRAISED VALUE	3,137,530,828	3,137,530,828	0	0	0	3,137,530,828
EXEMPTIONS	704,624,861	704,624,861	0	170,622-	170,622-	704,454,239
TAXABLE VALUE	2,409,615,148	2,409,615,148	0	170,622	170,622	2,409,785,770
LEVY	17,333.06	17,333.06	.00	1,507.74	1,507.74	18,840.80
UNCOLLECTIBLE	.00	.00	.00	.00	.00	.00
RECEIVABLE					.00	
EXEMPTION COUNTS:						
HOMESTEADS	9,611	9,611	0	4-	4-	9,607
OVER 65	2,398	2,398	0	2-	2-	2,396
DISABLED	183	183	0	0	0	183
VETERAN	215	215	0	0	0	215
TOTAL EXEMPT	618	618	0	0	0	618

Summary of Jurisdiction Remittances Processed

Report run on: December 10, 2018 2:38 PM

For Remitted Deposit Dates 11/01/2018 thru 11/30/2018 as of 12/10/2018

Version 1.50

Tax Unit		M & O Total	I & S Total	TIF Levy	TIF Interest	Fee Total	Total
337 FRIENDWD CITY							
ACH 44259	Print Date:11/08/2018						
	Current	98,065.91	21,359.16	0.00	0.00	0.00	119,425.07
	Delq	(11.00)	(2.42)	0.00	0.00	0.00	(13.42)
Last Deposit Date	11/01/2018	\$98,054.91	\$21,356.74	\$0.00	\$0.00	\$0.00	\$119,411.65
ACH 44299	Print Date:11/08/2018						
	Current	40,730.99	8,871.37	0.00	0.00	0.00	49,602.36
Last Deposit Date	11/02/2018	\$40,730.99	\$8,871.37	\$0.00	\$0.00	\$0.00	\$49,602.36
ACH 44338	Print Date:11/09/2018						
	Current	14,670.43	3,195.27	0.00	0.00	0.00	17,865.70
	Delq	1,188.57	221.20	0.00	0.00	0.00	1,409.77
Last Deposit Date	11/05/2018	\$15,859.00	\$3,416.47	\$0.00	\$0.00	\$0.00	\$19,275.47
ACH 44378	Print Date:11/09/2018						
	Current	54,982.99	11,975.53	0.00	0.00	0.00	66,958.52
	Delq	681.58	149.75	0.00	0.00	0.00	831.33
Last Deposit Date	11/06/2018	\$55,664.57	\$12,125.28	\$0.00	\$0.00	\$0.00	\$67,789.85
ACH 44418	Print Date:11/12/2018						
	Current	68,095.49	14,831.43	0.00	0.00	0.00	82,926.92
	Delq	162.22	35.65	0.00	0.00	0.00	197.87
Last Deposit Date	11/07/2018	\$68,257.71	\$14,867.08	\$0.00	\$0.00	\$0.00	\$83,124.79
ACH 44459	Print Date:11/12/2018						
	Current	78,243.68	17,041.74	0.00	0.00	0.00	95,285.42
	Delq	179.62	39.21	0.00	0.00	0.00	218.83
Last Deposit Date	11/08/2018	\$78,423.30	\$17,080.95	\$0.00	\$0.00	\$0.00	\$95,504.25
ACH 44500	Print Date:11/14/2018						
	Current	7,514.85	1,636.75	0.00	0.00	0.00	9,151.60
	Delq	60.23	6.94	0.00	0.00	0.00	67.17
Last Deposit Date	11/09/2018	\$7,575.08	\$1,643.69	\$0.00	\$0.00	\$0.00	\$9,218.77
ACH 44536	Print Date:11/14/2018						
	Current	32,010.81	6,972.07	0.00	0.00	0.00	38,982.88
Last Deposit Date	11/12/2018	\$32,010.81	\$6,972.07	\$0.00	\$0.00	\$0.00	\$38,982.88
ACH 44575	Print Date:11/15/2018						
	Current	25,280.83	5,506.27	0.00	0.00	0.00	30,787.10
	Delq	4,573.32	685.79	0.00	0.00	0.00	5,259.11
Last Deposit Date	11/13/2018	\$29,854.15	\$6,192.06	\$0.00	\$0.00	\$0.00	\$36,046.21
ACH 44613	Print Date:11/15/2018						
	Current	128,228.88	27,928.80	0.00	0.00	0.00	156,157.68
	Delq	(1,588.93)	(349.14)	0.00	0.00	0.00	(1,938.07)
Last Deposit Date	11/14/2018	\$126,639.95	\$27,579.66	\$0.00	\$0.00	\$0.00	\$154,219.61
ACH 44655	Print Date:11/19/2018						
	Current	59,868.03	13,039.57	0.00	0.00	0.00	72,907.60
Last Deposit Date	11/15/2018	\$59,868.03	\$13,039.57	\$0.00	\$0.00	\$0.00	\$72,907.60

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Summary of Jurisdiction Remittances Processed

Report run on: December 10, 2018 2:38 PM

For Remitted Deposit Dates 11/01/2018 thru 11/30/2018 as of 12/10/2018

Version 1.50

Tax Unit		M & O Total	I & S Total	TIF Levy	TIF Interest	Fee Total	Total
337 FRIENDWD CITY							
ACH 44694	Print Date:11/19/2018						
	Current	60,863.78	13,256.36	0.00	0.00	0.00	74,120.14
	Delq	1,668.52	332.73	0.00	0.00	0.00	2,001.25
Last Deposit Date	11/16/2018	\$62,532.30	\$13,589.09	\$0.00	\$0.00	\$0.00	\$76,121.39
ACH 44733	Print Date:11/21/2018						
	Current	48,602.96	10,585.93	0.00	0.00	0.00	59,188.89
	Delq	1,857.72	278.96	0.00	0.00	0.00	2,136.68
Last Deposit Date	11/19/2018	\$50,460.68	\$10,864.89	\$0.00	\$0.00	\$0.00	\$61,325.57
ACH 44772	Print Date:11/26/2018						
	Current	22,408.95	4,880.77	0.00	0.00	0.00	27,289.72
	Delq	931.16	208.96	0.00	0.00	0.00	1,140.12
Last Deposit Date	11/20/2018	\$23,340.11	\$5,089.73	\$0.00	\$0.00	\$0.00	\$28,429.84
ACH 44807	Print Date:11/27/2018						
	Current	134,721.73	29,342.90	0.00	0.00	0.00	164,064.63
	Delq	278.52	61.15	0.00	0.00	0.00	339.67
Last Deposit Date	11/21/2018	\$135,000.25	\$29,404.05	\$0.00	\$0.00	\$0.00	\$164,404.30
ACH 44847	Print Date:11/28/2018						
	Current	42,609.75	9,280.59	0.00	0.00	0.00	51,890.34
	Delq	1,950.70	385.40	0.00	0.00	0.00	2,336.10
Last Deposit Date	11/26/2018	\$44,560.45	\$9,665.99	\$0.00	\$0.00	\$0.00	\$54,226.44
ACH 44892	Print Date:11/29/2018						
	Current	46,335.92	10,092.13	0.00	0.00	0.00	56,428.05
Last Deposit Date	11/27/2018	\$46,335.92	\$10,092.13	\$0.00	\$0.00	\$0.00	\$56,428.05
ACH 44936	Print Date:11/30/2018						
	Current	32,640.73	7,109.27	0.00	0.00	0.00	39,750.00
	Delq	147.57	26.23	0.00	0.00	0.00	173.80
Last Deposit Date	11/28/2018	\$32,788.30	\$7,135.50	\$0.00	\$0.00	\$0.00	\$39,923.80
ACH 44981	Print Date:11/30/2018						
	Current	173,484.89	37,785.70	0.00	0.00	0.00	211,270.59
	Delq	1,717.73	346.99	0.00	0.00	0.00	2,064.72
Last Deposit Date	11/29/2018	\$175,202.62	\$38,132.69	\$0.00	\$0.00	\$0.00	\$213,335.31
ACH 45025	Print Date:12/10/2018						
	Current	59,641.20	12,990.05	0.00	0.00	0.00	72,631.25
	Delq	71.66	15.75	0.00	0.00	0.00	87.41
Last Deposit Date	11/30/2018	\$59,712.86	\$13,005.80	\$0.00	\$0.00	\$0.00	\$72,718.66
Total:		\$1,242,871.99	\$270,124.81	\$0.00	\$0.00	\$0.00	\$1,512,996.80



FRIENDSWOOD CITY COUNCIL AGENDA ITEM FORM

This form should be completed and forwarded to the City Manager's Office as soon as possible prior to the first date that the item is expected to be placed on the Friendswood City Council agenda.

Date requested for City Council consideration: 02/04/19

Date Submitted: 01/28/19

Dept. Clearances: Melinda Welsh

Prepared by: Heather Van Dine

Subject: Approve Council Meeting Minutes

Originating Department: City Secretary

Proceeding: Consent Agenda

Degree of importance: Critical ☐ Significant ☒ Elective ☐

Expenditure Required: N/A

Amount Budgeted: N/A

Appropriation Required: N/A

Source of Funds: N/A

FINANCE APPROVAL: N/A

MK

Morad Kabiri
City Manager

SUMMARY / ORIGINATING CAUSE

The Council Meeting minutes of January 14, 2019, are submitted for Council's review and consideration.

IMMINENT CONSEQUENCES / BENEFIT TO COMMUNITY

Approval of the Council Meeting minutes provides a historical document of actions taken by City Council as provided for in the Local Government Code and in the City Charter.

RECOMMENDATIONS

City Secretary recommends that Council approve the Council meeting minutes as presented.

ATTACHMENTS

[01-14-19 Minutes](#)

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STATE OF TEXAS)
CITY OF FRIENDSWOOD)
COUNTIES OF GALVESTON/HARRIS)
JANUARY 14, 2019)

MINUTES OF A REGULAR MEETING OF THE FRIENDSWOOD CITY COUNCIL THAT WAS HELD ON MONDAY, **JANUARY 14, 2019**, AT 5:00 PM AT FRIENDSWOOD CITY HALL COUNCIL CHAMBERS, 910 S. FRIENDSWOOD DRIVE, FRIENDSWOOD, TEXAS, WITH THE FOLLOWING PRESENT CONSTITUTING A QUORUM:

MAYOR
MAYOR PRO-TEM
COUNCILMEMBER
COUNCILMEMBER
COUNCILMEMBER
COUNCILMEMBER
COUNCILMEMBER
CITY ATTORNEY
CITY MANAGER
CITY SECRETARY

MIKE FOREMAN
JOHN SCOTT
STEVE ROCKEY
SALLY BRANSON
TRISH HANKS
ROBERT J. GRIFFON
CARL GUSTAFSON
MARY KAY FISCHER
MORAD KABIRI
MELINDA WELSH

REGULAR SESSION

Mayor Foreman called the meeting to order.

The invocation was given by Pastor Lynn Colby with Calvary Church.

Mayor Foreman led the Pledge of Allegiance to the United States and to the State of Texas.

COMMUNICATIONS FROM THE PUBLIC

Mayor Foreman asked if anyone would like to speak. No one spoke.

WORK SESSION

Mayor Foreman opened the discussion regarding bond election strategy and stated he believes discussions regarding a bond election in November should begin, drainage subcommittee should recommend projects soon, and would like to kick off discussions well in advance of the November Election Day.

City Manager Morad Kabiri presented a PowerPoint presentation regarding the bond strategy discussion. Staff has evaluated the best way to approach bond projects when it comes to the City of Friendswood and putting measures before voters. Some of the reasons for pursuing bonds include infrastructure needs over the next five to seven years for drainage, streets, and facilities, need for matching funds to pursue state and federal grant dollars, and projects that exceed operating budget financial capacities. In 2013, the city called for volunteers to serve on a Bond Advisory Group, which consisted of 80 plus residents. The group met for a period of six plus months to review the city's needs, vet potential projects, and evaluate potential impacts to the tax rate. The advisory group broke up into four subgroups including facilities, parks, street/drainage, and finance. If a Bond Advisory Group was replicated for 2019 similar subgroups could be done but do not necessarily have to be replicated and Staff would encourage a finance component like in 2013. Staff recommends the creation of a new advisory group for a possible November Bond Election. Recommendations from the current drainage subcommittee can feed into a Bond Advisory Group. Staff is looking for direction from Council. If Council agrees, Staff could take the same approach as 2013 and begin soliciting for volunteers and assistance.

Discussion took place between Mayor, Council, and Staff regarding that ballot language would be needed by August for a November Bond Election, would allow eight months for advisory group to work together and

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make a recommendation to Council. Staff could do typical solicitation for volunteers, process would give citizens a chance to vet and decide if they would like to move forward, and Staff would provide a list to the group of things the city will need to tackle within the next ten years.

Mayor Foreman opened the discussion regarding the Utility Rate Study. City Manager Morad Kabiri presented a PowerPoint presentation regarding utilities cost of services and rate study follow-up. At the December Council meeting presented a list of \$39 Million in projects for the City of Friendswood on the water/sewer side, projects are not luxury items, and city is contractually obligated for projects listed. Projects are needed to ensure clean delivery of water to each home in the City of Friendswood along with the removal of wastewater from homes, and to ensure that there is no disruption or down time to city facilities. Since the December Council meeting, Staff has included a reduction of \$6.5 Million to the five-year Utilities Capital Improvement Plan (CIP), proposed debt to be issued as \$7 Million in 2022 and \$6 Million in 2024, future debt issued with 30-year repayment, and year one average bi-monthly bill of \$175. The total budget in the Utilities CIP was reduced to \$32.5 Million by postponing additional sanitary sewer capacity purchases, postponing automated meter implementation, pursuing a waterline interconnect project along FM 528 with a developer partnership, and five-year plan extended to seven-year plan. Proposed water/sewer rates were shown for the next five-years after the updates to the Utilities CIP, and a 21% increase to average bi-monthly bill. A comparative benchmark chart was shown to compare the City of Friendswood's current and proposed rate to neighboring cities of Pearland, League City, and Alvin.

Discussion took place between Mayor, Council, and Staff regarding neighboring cities used for benchmarking. The City of Friendswood is not growing at the rate of the cities used, are there costs that are being absorbed related to their growth, and every entity has its own unique set of requirements on infrastructure and on maintenance and operations. Billing is consumption based pricing. The two main projects delayed were the automated meter reading and additional sewer capacity from the City of Houston. The City of Friendswood historically has been able to keep rates low because Friendswood has been extremely good stewards of the infrastructure and dollars given to operate the system, and water capacity was purchased in years past to ensure the city would be situated favorably moving forward along with wastewater needs. The City of Houston has additional capacity available for purchase, opportunity to purchase at cost, might be in the city's best interest to purchase additional capacity as funds become available.

Mayor Foreman opened the discussion regarding the quarterly Capital Projects update. Director of Public Works/City Engineer Patrick Donart presented a PowerPoint presentation regarding the progress made on Capital Projects over the last quarter. He reported on Old City Park, Blackhawk Boulevard Phase II, 2018 street maintenance contract, de-silting project, storm sewer cleaning and inspection, sidewalks on Greenbriar Drive, Lift Station No. 23, reconstruction of the pool restroom and ticket booth, current Texas Department of Transportation (TxDOT) projects, and current Galveston County Consolidated Drainage District projects.

Discussion took place between Mayor, Council, and Staff regarding the layout of the dog park at Old City Park, one section of the Blackhawk Boulevard Phase II project should be completed by the March Council meeting, contractor for project is in constant communication with residents along the road during progress, and the scope of work for Greenbriar Drive sidewalk project. Consensus of Council was for Staff to discuss intermittent curbs with the contractor for the Greenbriar Drive sidewalk project.

With concurrence of Council, Mayor Foreman moved to Agenda Item 8, Special Recognition and Acknowledgements.

SPECIAL RECOGNITION AND ACKNOWLEDGEMENTS

City Manager Morad Kabiri stated Eagle Scout Candidate Troop 452 Zeke Dryer has worked closely with the Friendswood Volunteer Fire Department, Fire Marshal's Office, Public Works Department and others throughout the community to install fire hydrant markers in Wedgewood and Forest Bend Subdivisions on the Harris County side of Friendswood.

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Zeke Dryer stated his group replaced 55 missing hydrant markers that were found missing or needing repairs in the neighborhoods, two to three extra were reported missing after the initial count and were replaced, all markers have been accounted for, reflect properly, and are in good working order.

City Manager Morad Kabiri stated the hydrant markers are critical for the city's first responders, markers allow the fire department to know where the closet hydrant is located, and the city appreciates the work Zeke Dryer and his group did.

Zeke Dryer introduced his mother, Angela Black, and stated the crew that helped him with the hydrant markers consisted of his fellow scouts, four volunteer fire fighters and two fire fighters, Friendswood Volunteer Fire Department Vice President Jeff Smith, and a photographer.

Friendswood Volunteer Fire Department Vice President Jeff Smith stated on behalf of the Friendswood Volunteer Fire Department they are excited about the hydrant marker project, 300 to 400 hydrant markers were looked at, hydrant markers replaced were damaged during debris cleanup from Hurricane Harvey, thanked Mr. Dryer and his troop for their service, and it has made a difference in the community.

With concurrence of Council, Mayor Foreman moved to Agenda Item 19, Consent Agenda.

CONSENT AGENDA

******Councilmember Scott moved to approve the Consent Agenda as presented: A. Authorizing the final acceptance of Old City Park Improvements Project into the contractor's one-year maintenance period. B. Approving the Blackhawk Testing contract with Terracon. C. Accepting the December 2018 Property Tax Report. D. Approving the minutes of the December 03, 2018, Council Meeting. Seconded by Councilmember Branson. The motion was approved unanimously.

With concurrence of Council, Mayor Foreman moved to Agenda Item 12, Communications from Committees and Special Reports.

COMMUNICATIONS FROM COMMITTEES AND SPECIAL REPORTS

Zoning Board of Adjustment and Appeals (ZBOA) Chair Greg Hughes presented the annual report. He stated there are five regular members and four alternate members on ZBOA, and the main job of ZBOA is to consider variances and special exceptions to certain items. The committee held nine meetings over the past year. The committee hears evidence on cases and collectively votes, and by state law a super-majority is required to grant an exception or variance. If either party is not happy with the findings of ZBOA, the only recourse is to file a lawsuit with the district or county court in which the property is located.

With concurrence of Council, Mayor Foreman moved to Agenda Item 6, Closed Executive Session.

CLOSED EXECUTIVE SESSION

Mayor Foreman asked if anyone would like to speak regarding the Executive Session. No one spoke.

Council convened into Executive Session in accordance with the Texas Government Code, pursuant to Section 551.071 – Consultation with Attorney about pending litigation, Cause No. 18-CV-0687; Christine Audibert v. Zoning Board of Adjustment of the City of Friendswood, Texas; in the 405th Judicial District Court of Galveston County, Texas.

RECONVENE INTO OPEN SESSION

Council reconvened into Open Session with no action taken later in the meeting.

With concurrence of Council, Mayor Foreman moved to Agenda Item 9, Public Hearing.

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PUBLIC HEARING

Mayor Foreman called a Public Hearing to order to receive comments from the public, both oral and written, regarding the 2018 Update Study of Land Use Assumptions, Capital Improvements Program and Impact Fees.

Community Development Director/City Planner Aubrey Harbin stated Director of Public Works/City Engineer Patrick Donart and herself would present a PowerPoint presentation to explain the Public Hearing items. Mrs. Harbin reported on what impact fees are, state local government code allows the city to assess and collect impact fees, funds that expansions to the water and sewer systems as a result of new development, collected when the building permit is issued, rate for developer is locked in at the time of platting, and based on Land Use Assumptions and the Capital Improvements Plan. Requirements for a city to charge impact fees include an update to Land Use Assumptions and Capital Improvements Plan every five years, and must have a Capital Improvements Advisory Committee that provides a written report. The Planning and Zoning Commission currently acts as the City of Friendswood's committee, and holds a Public Hearing to notify the public. Part of the study to justify new fees is the Land Use Assumption, study projects growth rate and population increase over the next ten years, growth rate of 1.5% over the next ten years, and estimated population growth of 6,492 over the next ten years. Mr. Donart reported on the Capital Improvement Plan, water and sewer projects that will be funded with impact fee funds, and Staff anticipates completing the projects within the next ten years, water projects approximate cost of \$6,852,000 and wastewater projects approximate cost of \$13,731,000, projects were listed and maps shown for each water project. The equivalent service unit is 2,434 units for the 2018-2028 planning period based off projected population increase. The recommended impact fee is determined by using estimated population growth and funds needed for water and sewer projects. The current impact fee charged is \$2,928, and showed a chart of impact fees charged by surrounding cities. Staff's recommendation is to charge \$4,227 for total impact fee, at Council's discretion, city can charge a lower impact fee than the recommended amount but cannot charge more.

Mayor Foreman asked if the impact fee would go up from an estimated \$2,800 to \$4,200 per new home, and Mr. Donart answered yes.

Councilmember Rockey asked what percentage of water and sewer capital projects the proposed impact fee would cover, and Mr. Donart answered 50% of new projects listed over the next ten years, does not include existing items, impact fees cannot be charged for existing water and sewer projects.

Mrs. Harbin stated the remaining 50% balance for new projects would come from water bills once the new homes are built.

Mayor Foreman asked if anyone would like to speak in favor or in opposition of the request. No one spoke.

Mayor Foreman stated there are many new water and sewer projects that need to be done to support new houses and business that are coming to the City of Friendswood.

Mayor Foreman adjourned the Public Hearing.

COMMUNICATIONS FROM THE PUBLIC

Linda Richard, Friendswood resident, addressed Council and stated not many citizens seem to be keeping up with the Friendswood Downtown Economic Development Corporation, applauds the board for their thoughtful approach to the commission and their desire to be fiscally responsible. When the conversation turns to the city needing money it reminds her of these corporation funds and how the sales tax was proposed by special interest group for only a defined narrow section of Friendswood. The \$40,000 to \$50,000 in sales tax revenue will only grow as business increases in the City of Friendswood, could be a good thing, sales tax does not sunset, City Council does have options, and asked if this is an effective use of citizen's tax dollars.

DRAFT

Gail Lovely, Friendswood resident, addressed Council and stated she appreciates that the city has committees that citizens can participate in, concerned due to huge commitments, proposed bond committee discussed is weekly meetings for eight months, suggested to host town hall meetings and send a survey to all residents to lighten the commitment to the committee, she wonders herself what other citizens think, everyone lives in small communities, and Council often does not get to hear from the whole community, encouraged Council to host a town hall meeting or send a survey before going for a bond election, and asked Council to keep working and thinking of ways to keep people involved.

Rodolfo Gonzales, Friendswood resident addressed Council and stated he heard promises during the election, would like Council to address roads that need repairs, Brazoria County has fixed their portion, spoke to someone from the city and was told there were no funds earmarked, suggested the city call State Representative Larry Taylor to assist in getting money to repair roads, a lot of traffic and big trucks on roadways, and more maintenance is needed. At the intersection of FM 2351 and Sunset Drive, the right turn access going eastbound on FM 2351 has been blocked, and whoever is responsible has blocked citizen's freedoms to be able to drive how they choose to drive. In America, citizens have freedom to practice their religion but money from city tax dollars should not be used to pay for Christmas lights.

Cheryl Johnson, Friendswood resident, addressed Council and stated according to the consultant's PowerPoint presentation, if the city completes all projects on the Capital Improvement Plan and funded solely with water and sewer rates there will be an increase of 44% to 70% by 2023. She further stated she is glad the automated meters have been removed from the proposed projects, proposed increase is huge and ten times the rate of inflation, a lot of savings could be had, or other funding sources found. She believes a lot of the projects are necessary but does not agree with funding solely with water and sewer funds. Council should consider funding projects with bond money, concerned with validity of data, provided a survey found on Clear Lake City Water Authority's website, in the past due to foresight from city leaders Friendswood's rate was able to remain low on the list of surrounding cities, and Council needs to ask the consultant what else the water rates are paying for. Requests that Council consider all funding sources and lay out all proposed projects, send a survey to residents, include some of the projects on a bond, and she would like to go on record as stating she is opposed to the funding source of water and sewer rates solely.

CITY MANAGER'S REPORT

City Manager Morad Kabiri reported that the Annual Tree Giveaway sponsored by Keep Friendswood Beautiful will be held January 19, 2019, starting at 8:00 AM at City Hall. Over 100 – fifteen-gallon trees will be given away to residents. The trees chosen this year include Live Oak, Chinese Fringe, Kay Parris Magnolia and Drummond Maple. The trees have been provided by Alvin Tree Farms. The giveaway is limited to one tree per family (first come-first served) and is for Friendswood residents only. A City of Friendswood water bill or driver's license is required. For more information, please contact the City of Friendswood Parks and Recreation Department.

The City Manager reported that every year in December, the city recognizes its employees for their years of dedicated service. Awards are given in five-year increments and presented at the Employee Christmas Party. The city appreciates all the employees across all departments and the hard work they do to provide the quality services the citizens of Friendswood expect.

The City Manager reported that he would like to commend the Friendswood Police Department, Friendswood Volunteer Fire Department (FVFD) and Police Communications Division for its vital assistance managing a pediatric patient they responded to on January 6, 2019. The call first started with Communications Operator Reynell Lundry and Communications Trainer and Operator Ashley Hempel who calmly gave prior arrival instructions to the infant's father, assisting him in starting Cardio Pulmonary Resuscitation (CPR) on his child. FVFD Medic David McCord, who lived next door, heard the call for service and immediately went next door to assist the with CPR. Officer Shaun McCaffrey, Officer Marcelo Bini, and Officer James Ruthstrom were the next to arrive on the scene. Officer Bini immediately began CPR with Mr. McCord. Then, Officer McCaffrey took over CPR while Emergency Medical Services (EMS) Assistant Chief Roy Hunter and EMS Captain Blake Brazzel came in and started advanced life support on the infant.

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The infant was moved to an ambulance for transport with additional Medics Captain Andrew Chalk and Emergency Medical Technician Mark Lavelle. It is without a doubt that the Police Department and FVFD's timely and direct assistance, working with EMS during this response, allowed the successful resuscitation of the 18-month old infant found not breathing and with no heartbeat. Not only should all these professionals be commended for their excellent assessment skills, but also for their interpersonal skills. The patient's family expressed appreciation for all Friendswood's first responders, for their concern and for keeping them informed of the infant's status. It is field performances such as this that display the excellent teamwork that gives the Friendswood Police Department and the FVFD the reputation it deserves for providing excellent services to the community.

The City Manager reported that Friendswood Independent School District has been named the number one safest school district in the Greater Houston area according to a Niche 2019 ranking, and Clear Creek Independent School District ranked as number 14. Niche analyzed data from the United States Department of Education alongside reviews of students and parents to create the ranking of safest districts. According to the report, rankings were based on a series of factors that include school related arrests, law enforcement referrals, expulsions, out of school suspensions, in school suspensions, student absenteeism, expenses per student and parent and student surveys on health and safety. The self-reported parent and student surveys carried the most weight in rankings, accounting for 50% of a district's total score. Expenses per student carried 10% of the total score and were compiled from the National Center for Education Statistics.

The City Manager reported that Staff continues to work with Federal Emergency Management Agency (FEMA) representatives to finalize project worksheets to maximize reimbursement dollars for funds expended responding to Hurricane Harvey. In late December, Staff learned the city's Hazard Mitigation Grant Program buyout application was approved. Staff and the city's consultant are awaiting paperwork to start the next phase of the program. Staff continues to pursue Community Development Block Grant-Disaster Recovery dollars, as well as funds for the elevation of Whispering Pines Bridge over Clear Creek, emergency shelter dollars for the Blackhawk facility, regional detention ponds in Harris County, and emergency evacuation/connectivity project (Friendswood Lakes Boulevard). The Galveston County Consolidated Drainage District is working on design plans for the shelving and off-line regional detention pond in Imperial Estates/1776 Park.

A video was shown regarding 2018 year in review.

With concurrence of Council, Mayor Foreman moved to Agenda Item 13, Discussion and possible action regarding the disposition of Bid No. 2018-21 for Construction of Greenbriar Sidewalk.

ACTION ITEMS

****Councilmember Rockey moved to approve the disposition of Bid No. 2018-21 for the Construction of Greenbriar Sidewalk and award to Teamwork Construction Services, Inc.**
Seconded by Councilmember Hanks. The motion was approved unanimously.

****Councilmember Branson moved to approve the City Wide Traffic Study agreement.**
Seconded by Councilmember Griffon. The motion was approved unanimously.

****Councilmember Scott moved to approve an Economic Development Agreement with Leisure Lane, LLC.**
Seconded by Councilmember Griffon. The motion was approved 6-1 with Councilmember Rockey opposed.

RESOLUTIONS

****Councilmember Branson moved to approve Resolution **R2019-01** – A resolution of the City Council of the City of Friendswood, Texas, authorizing and approving the 2018 Community Development Block Grant – Disaster Recovery. (CDBG-DR).**
Second by Councilmember Rockey. The motion was approved unanimously.

DRAFT

****Councilmember Branson moved to approve Resolution R2019-02 – A resolution of the City Council of the City of Friendswood, Texas, adopting the City Council Candidate Campaign Philosophy document. Seconded by Councilmember Hanks. The motion was approved 4-3 with Councilmembers Rockey, Griffon, and Scott opposed.**

Councilmember Rockey asked City Manager Morad Kabiri to read the resolution.

City Manager Morad Kabir read Resolution R2019-02.

ORDINANCES

****Councilmember Rockey moved to approve the First reading of Ordinance No. T2019-01 – An ordinance of the City of Friendswood, Texas, City Council, amending Appendix D of the Friendswood City Code to establish the rates to be charged by the city for water and sewer utility services for Fiscal Years 2019-2023. Seconded by Councilmember Branson. The motion was approved unanimously.**

****Councilmember Rockey moved to approve the First reading of Ordinance No. T2019-02 – An ordinance amending and updating Land Use Assumptions and Capital Improvements Plan and imposition of Impact Fees pursuant to the Texas Local Government Code annotated, § 395.001 et. seq.; amending the Friendswood City Code, Chapter 74 “Taxation”, Article III, Impact Fees, Section 74-52(d) and Appendix D to include updated impact fee amounts; providing a penalty in an amount not to exceed \$500 for violation of any provisions hereof by inclusion in the Code of Ordinances; repealing all ordinances or parts of ordinances inconsistent or in conflict herewith; providing for severability; and providing for publication and effective date.**

Seconded by Councilmember Branson. The motion was approved 6-1 with Councilmember Scott opposed.

****Councilmember Branson moved to approve the First and Final reading of Ordinance No. 2019-03 – An ordinance amending City of Friendswood, Texas, Ordinance No. 2018-28, passed and approved October 1, 2018, same being an ordinance approving and adopting the City’s General Budget for Fiscal Year 2018-2019 by approving “Budget Amendment III” to the “Original General Budget of the City of Friendswood, Texas, for the Fiscal Year 2018-2019”; providing for supplemental appropriation and/or transfer of certain funds; providing for severability; and providing other matters related to the subject.**

Seconded by Councilmember Griffon. The motion was approved unanimously.

COMMUNICATIONS FROM THE MAYOR AND COUNCILMEMBERS

Councilmember Branson stated she would like to thank City Manager Morad Kabiri and Director of Public Works/City Engineer Patrick Donart for giving her and Councilmember Gustafson a tour of the Public Works facility. Laurie Whitehead passed away December 1, 2018, a lot of her art work is hanging on the walls in City Hall, had a memorial service at the First Baptist Church, and there will be an art exhibition for her at Friendswood Frame and Gallery on February 2, 2019, at 4:00 PM. If anyone has an original of her artwork and would be willing to loan it out for the exhibition, contact Luis Briones at Friendswood Frame and Gallery.

Councilmember Hanks stated her congratulations to the longevity of the city employees, says a lot about the culture of the city, the environment in which they work, and the citizens they serve. Congratulated the Friendswood Police Department and Friendswood Independent School District on their great working relationship, have invested a lot of hours into a lot of things, it takes the whole community, and encourages all groups to continue working together.

Councilmember Griffon wished everyone a happy new year, and now it is time for Council to roll up their sleeves and go to work.

Councilmember Gustafson stated he has been honored to serve as a Councilmember for the past five and a half years. Council has accomplished quite a bit during his years of service, his seat for Council is up for election in May, and would like to remain being involved in developing solutions in the challenges the city continues to face, particularly in regards to drainage and economic development. For those reasons, he is

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announcing his intention to run for another term as Councilmember in the upcoming election.

Mayor Foreman stated he is looking forward to see who will get involved in the bond committee: there is a lot of work to be done, and looking forward to seeing the committee move forward.

Councilmembers Rockey and Scott stated they had nothing to report.

The meeting was adjourned at 7:54 PM.

Mayor Foreman

Attest:

Melinda Welsh, TRMC
City Secretary